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THE CERAMBYCIDAE, OR LONGHORNED BEETLES, OF SOUTHERN TEXAS: A FAUNAL SURVEY (COLEOPTERA)

By

Frank T. Hovore

Placerita Canyon Nature Center, 19152 W. Placerita Canyon Road, Newhall, California 91321

Richard L. Penrose

California Department of Food and Agriculture, 1220 N Street, Sacramento, California 95814

Raymond W. Neck

Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744

Abstract: An annotated species list of the longhorned wood-boring beetles (Coleoptera: Cerambycidae) is presented for southern Texas. The area surveyed roughly corresponds to the Texas portions of the Matamoran and Nuecian districts of the Tamaulipan Biotic Province, including all of the lower Rio Grande valley. Data given for the 178 species include original author citation, range, adult activity period, confirmed larval hosts, and anecdotal collecting and locality information. We propose no taxonomic changes, and nomenclature corresponds to the most recent literature. The species list is ordered according to the monographic revision of the family Cerambycidae (Linsley 1962*a*, *b*, 1963*a*, 1964; Linsley and Chemsak 1976, 1985), excepting that portion of the subfamily Lamiinae not yet treated by those authors, which is ordered according to the checklist of the Cerambycidae (Chemsak and Linsley 1982). Brief accounts of the biological, ecological, and historical aspects of the fauna are discussed. Prior literature on southern Texas Cerambycidae is summarized and collated.

Species reared from selected native plants are listed by host, with an updated account of species known to infest *Citrus* in southern Texas.

The origins and phyletic relationships of the fauna are briefly discussed, with a summary of some of the taxonomic limitations complicating faunal analyses of Neotropical Cerambycidae. Literature cited includes all original species descriptions.

Introduction

Adult Cerambycidae are characteristically elongate, subcylindrical beetles with long antennae, fully developed hind wings (numerous species, however, are flightless), and five-segmented tarsi with the fourth segment greatly reduced in size. Variation within the family is extreme; North American genera range in average length from 3 mm (*Cyrtinus*) to over 70 mm (*Derobrachus*) and vary in appearance from obscure, drab ground-dwelling forms to brightly colored, contrastingly patterned insect jewels, capable of swift flight. They are equally diverse

ecologically and behaviorally, occupying thousands of forest ecosystem microhabitats and niches, and partitioning resources to permit common use of limited amounts of suitable host plant material. Gosling (1981) documented the presence of active populations of over 100 species of cerambycids in an 80-ha woodlot in Michigan, and the number of species and population densities are even greater in Neotropical forest ecosystems. Chemsak and Linsley (1970) reported collecting 55 species of cerambycids at a light one August evening in the thorn forest north of Mazatlán, Sinaloa, Mexico. This figure represents no more than one-third of the total longhorned beetle fauna at that locality, since it does not include species taken other nights, nonphototropic species, species not active during that particular season, or any of the numerous diurnal species known to occur there.

Cerambycids are phytophagous, and as a family they utilize their host plants from rootlets to buds. Adult beetles may feed upon flowers, leaves, pine cones and needles, fruit, sap, fungi, or bark; while larval Cerambycidae feed externally upon roots, or bore within living, dying, or dead trunks, branches, stems, bark, floral stalks, or roots of both herbaceous and woody plants. Most species utilize existing suitable host materials for larval development, but a few genera create a larval habitat by girdling (either externally as adults, or internally as larvae) portions of living plants. No cerambycids are known to be truly predaceous, but adults of certain mimetic species of *Elytroleptus* have been observed feeding upon their lycid beetle models. The larval habits of this genus are unrecorded, but adults of two species have been taken from pupal cells in dead twigs, and the larvae probably feed upon dead wood (see Eisner et al. 1962, for a discussion of *Elytroleptus* predation upon Lycidae). The only other account of Cerambycidae as predators, by Bittenfeld (1948), shows adult *Aromia moschata* (Linnaeus) eating young spiders, but it is generally regarded with suspicion due to its lack of detailed observations and the absence of any subsequent corroboration.

Cerambycid larvae are whitish or yellowish, elongate, cylindrical or subquadrate in cross-section, with rounded heads and powerful chewing mouthparts. Growth and development may be quite rapid, with several generations maturing annually, or very slow, extending over several years. Larval feeding may be confined to a specific part of the host, particularly in species utilizing living plants, or the larvae may tunnel throughout the woody portions of the host, carving galleries several meters long.

A few genera degrade or destroy large volumes of harvested timber; others attack and weaken shade, fruit, and forest trees. Most species of Cerambycidae, however, breed in shrubs and trees of little current economic importance. Overall, longhorned beetles are essential to forest decomposition, recycling vast amounts of dead plant material. Larval feeding activities may alter a considerable volume of dead host material; Hovore and Penrose (1982) found that larval workings resulted in a wood-mass reduction of up to 70% in dead *Leucaena* in Texas. Additionally, larval galleries and adult emergence holes permit access into the wood for water, fungus, and soft-bodied insects such as termites and ants. Many adult cerambycids feed upon pollen and other portions of flowers, thereby serving as pollinators for many plant species. And both adult and immature life stages are a major food source for a broad spectrum of arthropod and vertebrate predators.

Based upon extant study material, the Neotropical Cerambycidae are both the most evolutionarily diversified and least-studied portion of the world longhorned beetle fauna. Over 5,000 Neotropical species have already been characterized, with many more thousands awaiting description or discovery. Unfortunately, the New World tropics are rapidly disappearing before the onslaught of unregulated land and resource usage; in many regions little remains of the original tropical forests. At this writing the estimated extinction rate for tropical organisms is one per day, with forests being cut at a rate of between 25 and 100 ha per minute (Wiley 1982). As forest tree species become extinct, their obligate faunas also disappear, altering or destroying many long-established interrelationships and trophic patterns. By virtue of the inseparable and often narrowly circumscribed relationships between Cerambycidae and their host plants, the population dynamics of these insects may well reflect the general health, or decline, of an overall forest ecosystem.

In North America, the forest habitats in greatest jeopardy are those combining small geographical size with accessible or economically desirable resources, climates, or soils. Thus, the semitropical regions of southern Florida and

southern Texas are North America's most critically threatened major ecosystems, with only fractional remnants of the original biota persisting in either area.

Historical Accounts from Literature

Although primarily confined to remnant habitats in the extreme southern portion of Texas, the Neotropical cerambycid fauna is remarkable for its species diversity and abundance. The lower Rio Grande valley (Lower Valley) has received considerable entomological attention, and since the appearance of the first brief species account by Schwarz in 1896, no fewer than six lists of the longhorned wood-boring beetles have been published.

Wickham (1898) recorded the collection of 26 species of cerambycids from the Lower Valley, and Townsend (1902) presented an annotated record of over 40 species from Texas and adjacent Tamaulipas, Mexico. Results of the 1904 and 1905 Kansas entomological expeditions to the Texas Gulf Coast were catalogued by Snow (1906), and included 22 species from the vicinity of Brownsville. Schaeffer (1908), in his extensive list of Cerambycidae from Brownsville, recorded 78 species and commented upon the validity of some of the previous accounts (not including Snow's list). Discrepancies in data citations, and identifications based upon outdated or synonymized names preclude a precise collation of data from these earliest accounts. We have, wherever possible, updated and explained changes in status or nomenclature.

Of greatest value to this study were the excellent species accounts of Linsley and Martin (1933) and Vogt (1949*a*). The former gave an annotated record of the results of two highly successful collecting trips to the Lower Valley region in 1930 and 1932, while the Vogt paper provided accurate host and habitat information for 83 cerambycid species. Linsley and Martin estimated that their list of 65 species brought the southern Texas total to 88, and their figure, combined with Vogt's account, boosted the total to approximately 100 species. Given the relatively small geographical area covered, the collection methods available to these workers, and the fact that only Vogt collected in the fall, this is a most remarkable figure.

For the present study, seven cerambycid collecting trips were made to southern Texas between 1972 and 1980, concentrating upon the spring and fall activity periods. Dates and collectors include the following: 12–18 May 1972, F. T. Hovore (FTH), E. F. Giesbert (EFG); 5–15 October 1975, FTH, EFG, R. L. Penrose (RLP); 2–6 May 1976, FTH, RLP; 9–19 May 1977, FTH, EFG, RLP; 10–13 May 1978, FTH and family; 21–28 October 1978, FTH, RLP; 10–16 May 1980, FTH, RLP, D. C. Carlson. The results of the individual surveys varied considerably due to the vagaries of weather, methodologies, localities visited, and the length of each stay. In total, 136 species of Cerambycidae were collected.

Geographic Boundaries of the Study Area

In order to reflect the ecological limits of the semitropical elements of the Texas cerambycid fauna, our list encompasses a slightly greater geographical area than did prior accounts. Specimen data indicate that the northernmost limits of the true semitropical fauna in Texas extend into the Nueces River drainage near Corpus Christi along the southeastern coastal strand, and northwest up the Rio Grande valley to the vicinity of Eagle Pass. These distributional limits correspond closely with the general parameters of the semitropical flora and fauna as expressed by Schwarz (1888, citing C. S. Sargent, Report of Forest Trees of North America). The Nueces River also marks the southernmost region of general distribution of the floral and faunal elements of the eastern woodlands, with the ranges of a number of widespread North American tree species extending south to the Corpus Christi–Kingsville area. Blair (1950), in discussing and redefining the concepts of biotic provinces in Texas, considered the region south of the Balcones Escarpment (below the Edwards Plateau) on the west, and the line between pedocal and pedalfer soils on the east (roughly corresponding to the drainage basin of the Nueces River), to comprise the Texan portion of the Tamaulipan Biotic Province. Within this province he later united the extreme southern counties (Starr, Hidalgo, Willacy, and Cameron), plus portions of adjacent Tamaulipas, into the Matamoran Biotic District, with the remainder regarded as the Nuecian District (Blair 1952). Our study region (Fig. 1) more or less corresponds to Blair's limits for the Texan portions of the Tamaulipan Biotic Province, although available records do not extend as far north along

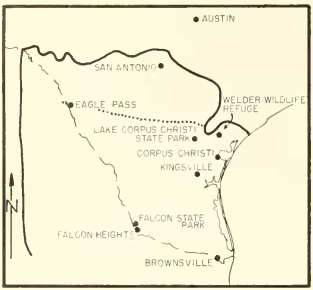

FIGURE 1. Southern Texas: Dotted line indicates the approximate boundaries of the study area; solid line indicates the northern limits of the Tamaulipan Biotic Province.

the Rio Grande. Our data citations include specimens from that portion of Texas south of Eagle Pass on the western border, and Copano Bay (just north of Corpus Christi) on the Gulf Coast. Most data, however, come from material gathered in the drainage basin of the Rio Grande from Falcon Lake (Zapata County) to Boca Chica (Cameron County); the Southmost sector of Brownsville; and from Lake Corpus Christi State Park and Welder Wildlife Refuge (both in San Patricio County). Much of the habitat within the remainder of the study area is dry upland Tamaulipan thorn-scrub (Texas Chaparral), mixed overstory brush savanna (overgrazed potential grassland), or cultivated land. Cerambycid species diversity is relatively low in these areas, and little collecting has been conducted beyond cursory beating and sweeping.

Climate and Topography of Study Area

The lower Rio Grande valley is comprised largely of a deltaic plain, often quite narrow, extending from extreme southern Starr County through southern Hidalgo County and expanding to encompass all of Cameron County, southern Willacy County, and portions of adjacent Tamaulipas. The inland portions of southern Texas are of diverse geologic origins, with a patchwork of soil types and subsurface formations of varying depths and ages, many of which exert direct controlling influences upon surface vegetational types. Most of the older sandstone formations of the upland portions of the Lower Valley are covered with brushlands or mesquite/huisache savannas, while the terrace deposits along the river valley proper support most of the substantial gallery forests. The deltaic plain is also covered with brushy plant formations, but they are denser and more luxuriant than those found in the drier uplands. Near the Gulf Coast, the plain gives way to open salt marshes and low, *Yucca*-dominated ridges, while to the north along the coast and inland there are deep, wind-blown sand deposits covered with prairie grass and scattered oak communities. For more complete discussions of the geology, soils, and vegetational characteristics of southern Texas, see: Coffey (1909); Hawker et al. (1925); Sellards et al. (1932); Trowbridge (1932); Clover (1937); Wynd (1944*a, b*); LeBlanc (1958); Box (1961); Thompson et al. (1972); and Williams et al. (1977).

The climate of southern Texas is generally rather mild, with warm dry summers and moderately cool winters. Winter frosts are not uncommon, but rarely last more than a few days; temperatures usually remain above −4°C. According to Clover (1937:42), "Killing frosts are rare, but frequent enough to make commercial growing of bananas and other tropical fruits impossible." These periodic hard frosts might also be a primary constraint upon the northward advance of the semitropical flora and fauna, and more severe winters undoubtedly result in temporary dieback of more cold-sensitive organisms, along with high rates of mortality among winter-active species. The record low temperature for Brownsville is −11°C, while temperatures at Welder Wildlife Refuge have gone as low as −12.7°C (Box and Chamrad 1966). Precipitation may occur during any month, with maxima in April–May and September. According to Porter (1977:30), ". . . there is actually great variation from month to month and from year to year. Protracted droughts are common but some years may have more than 1,000 mm of rain." March is the driest month (precipitation averages 26 mm at Brownsville), and September the wettest (precipitation averages 124.8 mm), with annual precipitation averages of 669 mm at Brownsville and about 800 mm at Welder Wildlife Refuge. Sudden, violent thunderstorms, common during spring and fall, drop several

hundred millimeters of rain in a few hours. The entire southern portion of the state is subject to occasional hurricane activity in late summer and early fall, with accompanying high winds, torrential rain, and coastal lowland inundation. Selected climatological studies of the Lower Valley include: Gunter and Hildebrand (1951); Haddock (1963); Carr (1967); Orton et al. (1967).

Habitat Information—Historical Perspectives

Agriculture and other forms of land development have more or less confined modern collecting in the lower Rio Grande valley to parks and sanctuaries. The remnants of the native floral communities are largely restricted to preserves, many of which are small and totally surrounded by developed land. Isolated stands of trees and brush do persist along resacas (old river channels) and roadsides, and these often contain surprisingly dense populations of insects. We cannot determine accurately how many, or what percentage, of the original floral and faunal components of the Lower Valley have been lost to land conversion, as much of the region (the river delta in particular) was cleared for agriculture by the late 1800s. Most of the original native vegetation was removed between 1880 and 1930, with little regard (and sometimes open contempt) for the unique ecosystems destroyed in the process. The typically narrow perspective of Lower Valley pioneers was typified by Kerbey (1939:52) in *National Geographic Magazine*

> Westward-faring pioneers in the early days of the United States had to chop down forests of sizeable trees to earn their land. . . . Here on the semitropical frontier there was work again, and lots of it, before the land could be put to use. . . . I was amazed when I saw for the first time the dense tangle of virgin growth that still covers parts of the region. The sight of it gave me a healthy respect for the early comers who had imagination and energy enough to peel off this ugly and tenacious "rind" to get to the rich, productive earth beneath. . . . Clearing land in the Rio Grande Delta, and thereby transmitting virtually worthless wilderness areas into valuable farms . . . has been a slow and expensive process. Since a little after the turn of the century, about 450,000 acres have been cleared . . . and between 50,000 and 100,000 acres of good irrigable land still remain to be cleared.

The earliest accounts of the coleopterous fauna of the Lower Valley referred to the native tropical forests as occurring in small, isolated "islands" or "little jungles" (Wickham 1897:97). E. A. Schwarz (1896:3) remarked that, "the Texan semi-tropical flora and fauna are doomed to almost complete extinction by the progress of agriculture, and already at the time of my visit, flourishing sugar-cane fields and corn-fields covered the major part of the area once occupied by the semi-tropical forest." Thirty-three years later, H. F. Schwarz (1929:426) sounded a similar, if less ominous, note, "The region will still continue verdant and attractive, but it will be with the blossom of citrus growth and other market products, and less and less with the bloom of the cactus, the huisache, and the Mexican mahogany. Let us hope that amid all the changes . . . representative groups of wild life may succeed in surviving, even if in diminished numbers." Linsley and Martin (1933:178) noted that by the early 1930s the spread of land conversion had reduced the original habitat to "half a dozen such thickets . . . and few of these are more than an acre or two in size," and that the Sabal Palm grove was being used as a public picnic ground, "where one may collect upon payment of the twenty-five cent admission price." In describing his 1946 and 1947 collecting localities, Vogt (1949*b*) noted that portions of several floral associations were then being cleared for agriculture and stated that practically all of the land north of the alluvial plain and delta region of the Lower Valley was under cultivation. In 1977, Vogt (pers. comm. to F. T. Hovore) further remarked that, "aside from Santa Ana Refuge and Bentsen (Rio Grande Valley State Park), almost no natural areas remain. Also weed cover has changed, apparently due to invasion of more exotic species. Even in the hills of Starr County farming and pasture improvement with exotic (South African) grasses has changed the ecology extensively." He concluded that, "Since many of the vegetation formations I studied have vanished, I would expect a complete faunal change in the Cerambycidae." Neck (1980), discussing the invertebrate fauna of the Lower Valley, stated, "There can be no doubt that the invertebrate fauna has been devastated by massive land clearing. However, a healthy fauna can be found in remnant tracts of brush. . . . There is no room for complacency, however; all remaining native brush tracts on the left bank should be preserved. As bleak as the situation is on the left (American) bank of the Rio Grande, native brush tracts are almost non-existent on the right (Mexican) bank."

Ecological Considerations: The Lower Valley Region

At present, agriculture has overwhelmed all but a few stands of native forest and scrub brush. In the delta of the Lower Valley, most of the remaining native flora lies along the deltaic plain and on the periodically inundated low coastal strand between Brownsville and Boca Chica beach. The National Audubon Society's Palm Grove Sanctuary at Southmost sector (near Brownsville), Resaca de la Palma State Park near Brownsville, Santa Ana National Wildlife Refuge near Alamo, and Anzalduas Park and Bentsen–Rio Grande Valley State Park, both near Mission, contain the major portions of the remaining Lower Valley hardwood forests. Although theoretically protected from further environmental destruction, these preserves are nevertheless subject to considerable unnatural stress from such factors as drift and seepage from application of agricultural chemicals on adjoining fields, irregularly fluctuating water tables (affected by irrigation and controlled river flow), and even the format of the environmental protection itself.

Anzalduas and Bentsen parks are managed to varying extents for recreational uses (picnicking, camping, sports, etc.), in some cases with regular chemical and mechanical vegetation control. Cerambycid collecting in the parks has frequently been well below our expectations (based upon observable floral elements and subjective assessment of potential), and in recent years, despite excellent collecting at other nearby localities, our results from park areas have been relatively poor. It may be that the ecological integrity of these communities has been diminished by continuously manicuring the vegetation in the natural areas. Efforts have recently been made by the Texas Parks and Wildlife Department to guard against ecosystem decline, and remedial measures (e.g., the prohibition of burning or removing dead wood, and restrictions on the use of topical pesticides) have been instituted in state parks and preserves.

Another factor that may contribute to the slow decline of faunas in relictual habitats, and one that would be most difficult to mitigate at this late date, is ecological isolation. Parks and preserves are separated from one another by broad zones of radically altered habitat, so there is little or no genetic exchange between populations of organisms with limited mobility. Sanctuaries (where there is less vegetation removal and alteration) appear to be ecologically healthier than parks but are also geographically isolated and are gradually declining. Recent studies of avifaunal regimes in ecological "islands" among the remnant woodland tracts of the eastern United States (MacClintock et al. 1977; Whitcomb 1977; Simberloff 1978) concluded that regional extinctions of Neotropical migrants would occur in habitats which were either too small (minimum size based upon an aggregate of territorial, trophic, and other needs) or lacking the necessary biotic diversity. Similar studies involving birds and mammals in tropical ecosystems and "habitat islands" (Terborgh and Winter 1980; Wilcox 1980) predicted variable rates of population decline and extinctions based upon general and species-specific criteria, but overall these studies concluded that rates and percentages of species extinctions increase exponentially as habitat size decreases. Because they are relatively small, reproduce rapidly, and utilize minimal amounts of host material, insects are less vulnerable to some population pressures, particularly stochastic population death resulting from diminished territory size and insufficient gene pool size. We know of no detailed studies on habitat requirements for maintenance of population viability in Cerambycidae; but overall population vigor probably relates, in part, to the general biotic condition of the ecosystem and, more specifically, to the diversity, abundance and seral status of the woody plants. Overstoried and senescent communities with decreasing floristic diversity, or with heavy invasion of exotic species, would be expected to lose some more narrowly specialized phytophagous insect species.

Most sanctuary areas in the Lower Valley are old-growth Tamaulipan interior swamp and riparian hardwood forest, Tamaulipan semideciduous forest, or overstoried Tamaulipan thornscrub (plant formation terminology adapted from Brown et al. 1980), dominated by a mature climax sere; all appear to be losing floristic diversity to senescence. Few of the requisite cyclical and successional processes of growth and decomposition occur at natural rates. Periodic flooding no longer occurs because of artificial levee systems. Fire, essential to vegetational succession in many plant communities, particularly in arid or semiarid regions, is suppressed within parks and preserves; their small size and lack of adjacent re-

fugia for wildlife practically precludes the use of fire to stimulate new growth and increase species diversity. The preserves are, in fact, extremely vulnerable to some of the very factors which once served to keep them vigorous and dynamic. Fire, flood, drought, and severe frosts, which together historically combined to influence the composition and distribution of much of the Texas semitropical habitat, could alone or in combination eliminate large numbers of species, with virtually no hope of any natural recolonization. Simberloff (1978:10) discussed the probabilities of species extinction in preserves, and noted that an interconnecting system of refuges would be a "bet-hedging strategy against catastrophes such as fire or epidemic diseases." Such a refuge network would no doubt also provide broader avenues of genetic exchange.

Natural habitats in southern Texas have been so drastically reduced, separated, and altered by human activity that many unique ecosystems have already been lost or radically reduced. And, despite the fact that most remnant forests of the Lower Valley are now in some type of preserve, urban and agricultural pressures on undeveloped land continue to mount. At this writing, the Lower Valley region has the most rapid rate of population growth in Texas. It seems then, that despite noble (if belated) attempts to preserve intact representatives of the original biota of the lower Rio Grande valley, the sad predictions of E. A. and H. F. Schwarz will at last be realized.

The Upland Region

Vast tracts of Tamaulipan thorn-scrub (chaparral) and a variety of savanna-woodland plant formations remain in the upper Rio Grande valley and northern portions of the study area, where it is still possible to find limited areas of more or less undisturbed habitat. Botanists (Clover 1937; Johnston 1963; Inglis 1964) have indicated that present upland chaparral regions are much more extensive now than they were prior to the introduction of livestock. Recent grazing has visibly altered formations and spatial relationships of many brushland plants, and in many areas exotic grasses and disturbed land-favoring genera of Compositae (=Asteraceae) grow in dense formations surrounding native trees and shrubs.

Although not as species-productive as the Lower Valley habitats, xeric upland communities nevertheless have strong representations of certain cerambycid tribes (e.g., Purpuricenini, Acanthocinini), particularly genera associated with either herbaceous rangeland shrubs or the dominant leguminous tree species, mesquite (*Prosopis glandulosa*) and huisache (*Acacia farnesiana*). Interestingly, beetles in the purpuricenine genera *Tylosis, Lophalia, Parevander,* and *Crossidius,* adults of which are found on fall-blooming herbaceous or woody subshrubs (*Abutilon, Haplopappus, Viguiera, Verbesina,* and *Helianthus*), are apparently increasing in distribution and relative abundance. Of these cerambycids, only *Tylosis* had been previously recorded from the study area; Vogt (1949*a*) reported the presence of *Tylosis,* in the only other paper with records from the fall season. He encountered *Tylosis* in only two localities, despite the fact that he spent considerable time collecting from flowers in areas where these beetles are now very abundant. Vogt is a most capable and observant entomologist/collector, and it is improbable that he would have overlooked these large, brightly colored cerambycids. Their absence from previous accounts is more likely either a reflection of their recent advance (along with their hosts) into now-suitable disturbed land habitats, or an artifact of some sort of environmental phenomenon. Cyclical population fluctuations of more "tropical" species may occur as a result of unusual pluvial cycles, and temporary population retreat or dieback may follow repeated freezes. The plants with which these cerambycid genera are associated, either as adult food sources or as larval hosts (only *Tylosis* and *Crossidius* have actually been reared), are primarily "weedy" forms that are sensitive to environmental changes, quick to invade disturbed substrates, and coincidentally nurtured by agriculture.

A converse effect of accelerating land conversion and the attendant increase in herbaceous vegetation is the reduction or elimination of tree species, and this is nowhere more evident than in southern Texas. Habitat and host plant reduction may lead to decline and extinction in associated insects, with oligophagous species most vulnerable. Recent rearings of southern Texas Cerambycidae (Hovore and Giesbert 1976; Hovore et al. 1978; Turnbow and Wappes 1978, 1981; Hovore and Penrose 1982) have, fortunately, indicated considerable polyphagy in a number of deadwood-boring species (see Selected Rearings from Deadwood).

Dean (1953) and Manley and French (1976)

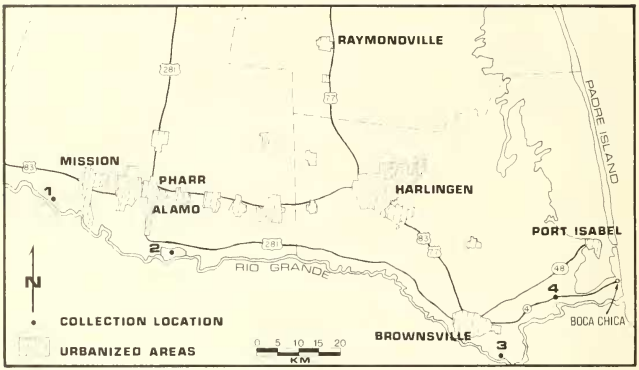

FIGURE 2. Lower Rio Grande valley collecting localities: 1) Bentsen–Rio Grande Valley State Park, 2) Santa Ana National Wildlife Refuge, 3) Audubon Society Palm Grove Sanctuary, 4) 16 km west of Boca Chica.

recorded rearing 18 species of Cerambycidae (and one species each of Bostrichidae and Buprestidae) from *Citrus* grown in the Lower Valley. Dillon and Dillon (1946) additionally list *Oncideres pustulatus* as having been taken on (but not necessarily infesting) *Citrus*. The breadth of host plant preferences shown by these rearings suggests that the net effect of tree species elimination may be mitigated by the abilities of entomofaunas to utilize alternative or introduced hosts, including ornamental and agricultural plants. Fox and Morrow (1981:889) stated that host plant selection "may have a strong genetic basis, controlled by only one locus or polygenic region, so that shifts in preferences for particular host plants can be very rapid." The potential genetic significance of colonization of new or introduced hosts by insect populations was hypothesized by Mayr (1954); populations on new hosts may quickly begin to function as sibling species, morphologically, reproductively (and therefore genetically) isolated from the parent populations (Fox and Morrow 1981). Based upon experiments with *Drosophila*, Templeton (1979) concluded that colonizing a new genetic environment can quickly lead to unique and possibly isolating changes in the morphology, ontogeny, physiology, and behavior of a species. Shifts in host plants might in turn lead to discernible phenotypic differences between original, naturally occurring cerambycid populations and new-host pioneering populations. Should such changes occur in Cerambycidae in southern Texas, we will be better able to detect and quantify them if we take care to preserve adequate voucher samples of all species from all native hosts.

DESCRIPTIONS OF COLLECTING LOCALITIES
(Figures 1 and 2)

Audubon Society Palm Grove Sanctuary, Southmost sector, Brownsville, Cameron County

Clover (1937) catalogued the floral components of this unique remnant of the original tropical palmetto forests, listing the plant species encountered in a transect line from the margin of the Rio Grande River into the densest stand of palms. A later survey of the grove was conducted by Davis (1942).

The 425-ha sanctuary contains a subriparian gallery forest of mixed hardwood trees (*Ulmus, Celtis, Leucaena, Pithecellobium,* etc.) and mature *Sabal texana,* with elements of semideciduous forest, festooned along the margins with vines of *Clematis, Serjania, Melothria,* and *Cissus*. Beneath the tree canopy, understory vege-

tation is limited by shading, excessive dampness, and a rank layer of rotting fronds. Openings in the forest (most recently created by limited brush clearing and a small fire) exhibit luxuriant and varied herbaceous growth, interspersed with *Baccharis* and seedling *Leucaena*. For the few years that these clearings remain (before the *Leucaena* and other tree species shade out the herbaceous vegetation) they will provide excellent insect collecting. Unfortunately, a bamboolike grass (*Arundo donax*) has invaded the sanctuary along the southern and northern margins and appears to be spreading along paths and service roads.

A large stand of *Salix* grows along the margins of the sanctuary's crescent-shaped resaca, and as one moves away from the lower portion of the intermittent pond, there is a narrow row of large *Celtis* and *Sapindus* between the *Salix* and the adjoining cultivated lands. Another row of *Celtis, Ulmus, Fraxinus,* and herbaceous plants grows along the levee of the Rio Grande, extending about 2 km out from the main portion of the grove. Along the north margin of the resaca, and well above the water table, there is an extensive stand of *Prosopis, Condalia, Zizyphus,* and *Celtis*.

According to a recent publicity note from the Audubon Society (Line 1978), long range plans call for expansion of the palm grove to its former size, and restoring the native shrubs that were cleared for agriculture. In 1980 the Nature Conservancy conveyed about 900 ha of palm jungle habitat to the U.S. Fish and Wildlife Service for inclusion in a future refuge, the "Boscaje de la Palma" (The Nature Conservancy 1981).

Collecting in the sanctuary has been remarkably productive, yielding over 75 species of Cerambycidae, including several as yet unknown outside the grove area.

16 km west of Boca Chica on Rt. 4, Cameron County

This locality consists of a few acres of open brushland atop a loma, or clay dune, along the highway leading from Brownsville to Boca Chica beach. Dominant plants include *Zizyphus, Baccharis, Karwinskia, Yucca, Opuntia,* and *Haplopappus*, with a few scattered *Prosopis* and *Acacia*. A detailed study of the salt-flat–clay-dune coastal lowland area was presented by Johnston (1952). Collecting at this site was particularly fruitful in the fall, yielding over 20 species of longhorned beetles.

Santa Ana National Wildlife Refuge, 9.7 km south of Alamo, Hidalgo County

Santa Ana National Wildlife Refuge consists of approximately 12,000 noncontiguous hectares of Tamaulipan semideciduous brush and mature forests along the Rio Grande. Significant areas of vegetation were altered during the construction of several artificial intermittent ponds as waterfowl enhancement projects. Fleetwood (1973) presented detailed information regarding plant formations on the refuge. We collected near the refuge headquarters in the 5,200-ha Santa Ana tract, in an overmature *Pithecellobium/Celtis/Ulmus* forest. Most material was attracted to lights placed along the wildlife drive or beaten from slash and downhanging branches along the west margin of Willow Lake.

Bentsen–Rio Grande Valley State Park, 4.8 km west of Mission, Hidalgo County

This 1,440-ha state park contains dense formations of most of the major native plant communities of the Lower Valley, including Tamaulipan semideciduous forest, Tamaulipan interior swamp, riparian hardwood forest, and mature thorn scrub. Portions of the present protected area were substantially altered by human use prior to 1953, and a major section of the resaca bank is maintained as a grass-lawn picnic and camping area.

Collecting techniques included ultraviolet and mercury vapor lights in the camping and picnic areas, beating and sweeping along roads and trails, and searching slash piles at night. Species totals were excellent in 1972 but decreased in successive visits, most notably in light-collected material. Nevertheless, a number of species taken during our survey are known only from the park.

Rob and Bessie Welder Wildlife Foundation Refuge, 11.3 km north of Sinton, San Patricio County

Welder Wildlife Refuge is managed in part as a working cattle ranch and experimental range. According to Box and Chamrad (1966), the property has been grazed for more than a century but has never undergone formal cultivation. There are 16 recognized plant formations on the prop-

FIGURE 3. Male *Oncideres pustulatus* on girdled branch of tepehuaje (*Leucaena pulverulenta*).

FIGURE 4. Male *Lochmaeocles cornuticeps cornuticeps* on tepehuaje. Larval frass may be seen protruding from ruptures in the bark.

erty, most of which are open-range habitats. Communities on arid sites are generally characterized by mixed grasses, cactus, and rangeland shrubs, while on more mesic sites riparian, semiaquatic, or aquatic plants predominate. Some grassland communities are interspersed with thickets of leguminous trees, and most are bordered by large tracts of almost impenetrable brush.

We conducted most of our collecting in four habitats: the dense hackberry/anaqua and woodland/spiny aster communities at the extreme eastern edge of the refuge; the chaparral/bristlegrass community along the railroad right-of-way south of the main refuge entrance; and the live oak/chaparral community adjacent to the headquarters buildings (community terminology after Box and Chamrad 1966).

Lake Corpus Christi State Park, 8 km southwest of Mathis, San Patricio County

Dominant vegetation formations around Lake Corpus Christi are upland Tamaulipan semideciduous forest and thorn scrub, with minor influences from the more northern Balconian Biotic Province. Scrub communities are characterized by a mixture of *Condalia, Zanthoxylum, Diospyros, Leucophyllum,* and *Yucca,* with scattered invasions of *Prosopis.* Drainages are wooded mainly with *Ulmus, Celtus,* and *Ehretia.* Original bottomland communities were inundated when the Nueces River was impounded in the 1930s to form the lake.

Collecting techniques consisted primarily of beating and sweeping roadside vegetation, searching slash piles at night, and light collecting near the park maintenance area.

PHENOLOGY

Adult cerambycid activity in southern Texas is distinctly bimodal, the spring and fall peaks coinciding with seasonal patterns of moderate temperatures and increased precipitation. These activity peaks generally agree with those documented by Fuchs and Harding (1976) for arthropod predators in the Lower Valley. Although a number of species have been collected through the hot summer months, there is a general hiatus in cerambycid activity during July and August. Most summer records are for nocturnal Sonoran species that are apparently better able to tolerate high temperatures and low humidity. We have not seen enough material from the winter months to draw any meaningful conclusions regarding general activity, but it appears that a few species (such as *Placosternus difficilis, Euderces reichei exilis,* and *Anelaphus spurcus*) may be encountered during any month of the year.

Adult activity within peak seasons fluctuates, with both species-abundance and rates of movement generally increasing in response to rises in temperature and humidity. Periods of extended drought may delay adult emergence. Unseasonably cool temperatures tend to suppress activity, especially of nocturnal species. Once emergence has occurred, rainfall has no more than a tran-

sitory effect upon beetle activity, except at night. Light collecting is rarely profitable during or immediately after heavy rainfall, although sudden rises in air temperature (and consequently in ambient humidity and numbers of mosquitoes) can initiate surges of dispersal activity.

During the severe drought in 1980, cerambycids breeding in living host plants (e.g., *Callona* in mesquite, *Mecas* spp. in Compositae) emerged somewhat earlier in spring than normal, while deadwood-feeding species were weeks or months behind normal activity patterns. Examination of a variety of infested wood revealed high rates of larval and pupal mortality of all woodboring insects, and numerous dead adult longhorns were found within their pupal chambers.

The protracted drought of the summer and fall of 1982 had even more severe effects upon collecting, and a half-day's beating in the palm grove yielded only two beetles. Extended dry periods must exert considerable selective pressure upon the insect fauna of the region, affecting the "tropical" species most dramatically.

Introduction to Species Accounts

Distributional ranges in the following accounts were drawn from recent literature and from specimen data. Activity periods for species with widespread distributions outside the study area include dates from other localities only where insufficient data were available from southern Texas.

Cited larval hosts represent rearing records or reliable immature associations from original literature sources. Some host listings cited from Linsley (1962*a*, *b*, 1963*a*, 1964) refer to records of adult collection, and do not represent larval hosts. Host citations that refer to specimen data follow the format of collector and institution abbreviations in the acknowledgments. Uncredited host citations are from our rearings, recorded for the first time herein. We have attempted to update and emend pertinent data citations from older literature, by including discussions of questionable records in the species accounts.

Common collecting localities are abbreviated in text as follows: Audubon Society Palm Grove Sanctuary (PG), 16 km west of Boca Chica (BC), Bentsen–Rio Grande Valley State Park (BRG), Lake Corpus Christi State Park (LCC), Rob and Bessie Welder Wildlife Foundation Refuge (WWR), Santa Ana National Wildlife Refuge (SAR), Falcon State Park and Falcon Heights (these two localities are contiguous) (FSP). Locality data taken from specimens are cited as given on labels with metric equivalents in brackets following mileages.

The arrangement of species corresponds to Linsley (1962*a*, *b*, 1963*a*, 1964) and Linsley and Chemsak (1976, 1985), except that portion of the subfamily Lamiinae not yet treated in the Linsley monograph series, genera and species of which are ordered according to the *Checklist of Cerambycidae: the Longhorned Beetles* (Chemsak and Linsley 1982). Literature Cited includes all original species descriptions. See the Linsley monograph series for more complete taxonomic references, generic and species keys, species descriptions, and general bionomic information.

Species Accounts

Parandrinae

Parandra (Archandra) polita Say, 1835:192

Range.—Central America to Indiana, Ohio, and northern Florida.

Adult Activity.—May to July.

Larval Hosts.—*Fagus, Carya, Liriodendron* (Linsley 1962*a*), *Pinus* (Chemsak et al. 1980).

Discussion.—Snow (1906) recorded collecting this species at Galveston, Galveston County, and Brownsville, Cameron County, and Linsley (1962*a*, fig. 2) shows a locality near Houston, Harris County. Adults were collected from beneath bark of decaying trunks of the larval hosts and at lights.

Prioninae

Archodontes melanopus serrulatus LeConte, 1854*a*:82

Range.—Southwestern U.S. from Texas to Arizona.

Adult Activity.—June to September.

Larval Hosts.—*Populus* spp., *Prosopis* (Linsley 1962*a*), *Citrus* (Dean 1953).

Discussion.—The nominate subspecies bores within root crowns of living or dying *Quercus* in the southeastern U.S., and oak may also serve as a larval host for *serrulatus* in the oak-savanna habitats of southcoastal Texas. Adults are attracted to lights.

New Localities.—Flour Bluff, Nueces County, 26 September (TAI); Padre Island.

Stenodontes (Orthomallodon) dasytomus dasytomus (Say, 1824: 326)
(Figure 5)

FIGURE 5. Male (left) and female (right) *Stenodontes* (*Orthomallodon*) *dasytomus dasytomus*.

FIGURE 6. Male (left) and female (right) *Rhopalophora laevicollis*.

RANGE.—Southeastern U.S. to eastern Mexico.

ADULT ACTIVITY.—April to October.

LARVAL HOSTS.—*Platanus, Celtis, Quercus, Salix, Liquidambar, Bursera, Acer* (Linsley 1962*a*), *Carya* (Riley 1880), *Citrus* (Dean 1953), *Ulmus*.

DISCUSSION.—Larvae feed in decaying stumps and logs; adult beetles congregate under loose bark, often retreating into their emergence holes during the day. Pupae and teneral adults were taken from heartwood portions of a rotting *Celtis* stump in the Palm Grove Sanctuary, Cameron County, in May. Adults are commonly attracted to lights.

NEW LOCALITIES.—Anzalduas Park, Hidalgo County: SAR; BRG; WWR; LCC.

Derobrachus geminatus LeConte, 1853:233

RANGE.—Southern California to Arizona, Texas, and northern Mexico.

ADULT ACTIVITY.—May to September.

LARVAL HOSTS.—*Populus, Quercus, Prosopis* (Linsley 1962*a*), *Ulmus, Cercidium, Morus, Citrus* (Moore and Little 1967), *Vitis* (Thomas 1951).

DISCUSSION.—This is an upland species, associated with mesquite and paloverde; the larvae feed upon roots of living trees. Vogt (1949*a*) collected six males at lights in Rio Grande City, Starr County, in May, and we took specimens at street lights at Falcon State Park in September.

Prionus (Neopolyarthron) imbricornis Linnaeus, 1767*a*:622

RANGE.—Atlantic states south to Florida and west to Nebraska and south-central Texas.

ADULT ACTIVITY.—March to September.

LARVAL HOSTS.—*Quercus, Castanea, Pyrus, Vitis*, maize, and a wide variety of hardwoods and herbaceous shrubs (Linsley 1962*a*).

DISCUSSION.—One specimen in the TAI collection is labeled as this species (identification not verified) from Kingsville, Kleberg County. Adults are common at lights throughout the species range.

Prionus (Antennalia) fissicornis Haldeman, 1845:125

RANGE.—Great Plains east of the Rocky Mountains, from Montana and Minnesota south to Texas.

ADULT ACTIVITY.—May to July.

LARVAL HOSTS.—Grasses (Linsley 1962*a*).

DISCUSSION.—Linsley (1962*a*, fig. 16) showed this species from near Corpus Christi, Nueces County, and we have seen specimens from near Austin, Travis County, collected in early May (RWN).

Cerambycinae

Smodicum cucujiforme (Say, 1826:277)

RANGE.—Eastern North America to Florida and Texas.

ADULT ACTIVITY.—April to August.

LARVAL HOSTS.—*Robinia, Carya, Fagus, Celtis, Salix, Populus* (Linsley 1962*b*).

DISCUSSION.—Linsley's (1962*b*) account of this species included material later described as *Smodicum texanum* Knull (1966), and the record of *Salix* as a larval host was probably based upon observations of the latter taxon in the Lower Valley (Linsley and Martin 1933). Characters cited by Knull for separating the two species are difficult to interpret in material from southern

Texas, and it appears that *texanum* differs from *cucujiforme* only by its slightly paler coloration, more lightly pubescent dorsum, and minor differences in antennal proportions. Martins (1975), who examined only two male specimens of *texanum,* suggested that it may be a subspecies of *cucujiforme* but made no formal status change. Because of the difficulty in defining the taxonomic parameters and status of *texanum,* we are considering as *cucujiforme* only a single specimen from WWR (RHT), determined by R. H. Turnbow. All other south Texas specimens of *Smodicum* are referred to *texanum* pending resolution of the status of the two names.

Smodicum texanum Knull, 1966:137

RANGE.—Southern Texas.
ADULT ACTIVITY.—March to June.
LARVAL HOSTS.—*Salix*?

DISCUSSION.—The taxonomic status of this form is uncertain (see *S. cucujiforme,* above), and material from southern Texas cannot be placed with certainty. Adults referred herein to *texanum* were collected at lights in several localities, and other south Texas specimens (presumably *texanum*) were collected from beneath bark of *Salix* (Linsley and Martin 1933) and *Celtis* (Vogt 1949*a*).

NEW LOCALITIES.—LCC; PG; SAR.

Malacopterus tenellus (Fabricius, 1801:335)

RANGE.—Southern California and the southern Great Basin to Texas, Mexico, and Central and South America.
ADULT ACTIVITY.—May to October.
LARVAL HOSTS.—*Salix, Populus, Celtis* (Linsley 1962*b*).

DISCUSSION.—In southern Arizona, this species was cut from pupal cells in moist, punky trunks of dead willow (FTH, EFG), and J. E. Wappes beat an adult from *Celtis* foliage in the palm grove. The host record cited from Linsley (1962*b*) for *Celtis* referred to adults taken beneath bark. We collected specimens at lights in May and again in October.

NEW LOCALITIES.—BRG; Brownsville, Cameron County.

Methia constricticollis Schaeffer, 1908:351

RANGE.—Southeastern Texas to Mexico.
ADULT ACTIVITY.—April, May, and September.
LARVAL HOSTS.—*Celtis* (Turnbow and Wappes 1978), *Zanthoxylum* (Turnbow and Wappes 1981).

DISCUSSION.—Adults were reared from twigs of dead hackberry and colima and have been taken at lights.

NEW LOCALITIES.—BRG; SAR; WWR; FSP.

Styloxus fulleri fulleri (Horn, 1880:138)

RANGE.—South-central Texas.
ADULT ACTIVITY.—July to October.

DISCUSSION.—The larval habits of this subspecies are not recorded, but they are probably similar to those of the subspecies *f. californicus* (Fall) which girdles oak twigs. Vogt (1949*a*:140) recorded collecting "*Styloxus* sp." from Pharr, Hidalgo County, and stated that it was neither *fulleri* nor *texanus* (now considered a synonym of *fulleri*). Linsley (1962*b*), perhaps based upon a reassessment of Vogt's material, recorded *fulleri* from Hidalgo County. This beetle is evidently most active during the summer and is uncommon in collections. Adults are attracted to lights.

NEW LOCALITIES.—LCC; SAR; FSP.

Achryson surinamum (Linnaeus, 1767*a*:632)

RANGE.—Southern California, Baja California to Arizona and Texas, Mexico, Central and South America, and the West Indies.
ADULT ACTIVITY.—March to November.
LARVAL HOSTS.—*Aspidosperma, Cercidium, Ficus, Prosopis, Acacia, Schnopsis, Pithecellobium, Ulmus, Celtis, Inga, Nectandra, Robinia, Tamarindus, Chlorophora, Brya* (Linsley 1962*b*), *Leucaena* (Hovore and Penrose 1982).

DISCUSSION.—This species is very abundant on almost any sort of deadwood at night, and adults are readily attracted to lights. The larvae mine extensively within the dry sapwood and heartwood of branches and trunks of dead host plants.

NEW LOCALITIES.—BRG; Anzalduas Park, Hidalgo County; LCC; WWR; SAR.

Geropa concolor (LeConte, 1873:176)

RANGE.—Southern Texas to southern Mexico.
ADULT ACTIVITY.—March to November.
LARVAL HOSTS.—*Ulmus, Acacia, Mimosa* (Linsley 1962*b*), *Pithecellobium* (Linsley and Martin 1933), *Leucaena* (Hovore and Penrose 1982).

DISCUSSION.—This nondescript species was abundant on two-year dead *Acacia* trees at Welder refuge in May and October. The larval habits are similar to those of *Achryson surinamum.*

NEW LOCALITIES.—SAR; BRG; BC; LCC; Sinton, San Patricio County; 10 mi (ca. 16 km) E. jct. of Hwy. 4 and 1419, Cameron County (RHT).

Gracilia minuta (Fabricius, 1781:235)

RANGE.—Europe, Africa, introduced into North America.
ADULT ACTIVITY.—May to July.
LARVAL HOSTS.—*Salix, Quercus, Rhamnus, Corylus, Aesculus, Betula, Ceratonia, Rubus, Rosa* (Linsley 1962*b*), *Citrus* (Manley and French 1976).

Discussion.—This cosmopolitan species is often injurious to wood products. Specimens were reared from *Citrus* in the Lower Valley (Manley and French 1976).

Hypexilis pallida Horn, 1885:173

Range.—Southeastern Arizona to western and southern Texas, northern Mexico.
Adult Activity.—April to July.
Larval Hosts.—*Salix* (Turnbow and Wappes 1981), *Ulmus*? (Hovore et al. 1978).

Discussion.—Specimens were beaten and reared from willow, and beaten from elm. Adults are most commonly collected at lights.

New Localities.—SAR.

Eburia stigmatica Chevrolat, 1834:fasc. 3, no. 60

Range.—Southern Texas to central Mexico.
Adult Activity.—March to May, October.
Larval Hosts.—*Celtis* (Hovore et al. 1978).

Discussion.—Adults have been collected from beneath loose bark of *Celtis* (Vogt 1949*a*), *Salix*, and *Acacia* (Linsley and Martin 1933) and reared from dry limbs of sugar hackberry. At night we collected numerous adults from recently felled hackberry and attracted several specimens to lights.

New Localities.—PG; BRG; Anzalduas Park, Hidalgo County; FSP; SAR.

Eburia ovicollis LeConte, 1873:180

Range.—Northern Mexico to southern Texas.
Adult Activity.—May to September.
Larval Hosts.—*Prosopis* (Hovore and Giesbert 1976).

Discussion.—Townsend (1902) collected adults from dead guava and by beating foliage. Linsley and Martin (1933) took a few specimens on ebony, and the senior author (in Hovore and Giesbert 1976) collected an adult male as it emerged from a branch of dead mesquite. Adults are attracted to lights and are most numerous in early summer.

New Localities.—PG; BRG; SAR; Kingsville, Kleberg County; WWR.

Eburia mutica LeConte, 1853:233

Range.—Central Texas to northern Mexico.
Adult Activity.—April to June, October.
Larval Hosts.—*Celtis* (Hovore et al. 1978), *Citrus* (Dean 1953), *Prosopis*, *Pithecellobium* (Turnbow and Wappes 1978), *Leucaena* (Hovore and Penrose 1982), *Ulmus*.

Discussion.—Previous lists variously recorded this species as *Eburia mutica*, *E. mutica* var. *manca* LeConte, or *E. tumida* LeConte. Adults are abundant on dead limbs of the larval hosts at night and come to lights. Numerous specimens were taken from the trunk of a wind-thrown hackberry in Bentsen State Park, and pupae and teneral adults were cut from dead branches of that host.

New Localities.—WWR; Sinton, San Patricio County; LCC; PG; SAR; FSP.

Eburia haldemani LeConte, 1850:102

Range.—Arizona to the southeastern U.S. and Florida, south to northern Mexico.
Adult Activity.—May to July.
Larval Hosts.—*Celtis* (Rice et al. 1985).

Discussion.—Numerous adults were attracted to fermenting molasses bait in western and central Texas. The host record of *Celtis* is based upon collections from decayed hackberry in western Texas. Linsley and Martin (1933) took an adult beneath bark of *Salix* near Brownsville, Cameron County, and Vogt (1949*a*) collected a specimen under bark of *Ulmus*. It is occasionally attracted to lights.

New Localities.—BRG.

Tylonotus bimaculatus Haldeman, 1847:38

Range.—Eastern North America, south to Florida, southwest to southern Texas, and west to Arizona.
Adult Activity.—May to August.
Larval Hosts.—*Fraxinus*, *Betula*, *Juglans*, *Carya*, *Liriodendron*, *Ulmus*, *Ligustrum* (Linsley 1962*b*).

Discussion.—A single specimen of this common eastern species was attracted to light in May at Bentsen–Rio Grande Valley State Park, Hidalgo County (FTH). In other parts of the range this species is often abundant on living trees, particularly ash.

Mannophorus laetus LeConte, 1854*b*:442

Range.—Western and southern Texas, northern Mexico.
Adult Activity.—May, September to November.

Discussion.—Adults frequent blossoms of Compositae, especially *Helianthus*, *Viguiera*, and *Verbesina*, but the larval host is unknown. It is an upland species, most commonly encountered along roadsides in thornscrub communities.

New Localities.—1.5–2 mi [ca. 2.4–3.2 km] E Sullivan City, Starr County; 6–8.5 [ca. 9.7–13.7 km] and 13–14 mi [ca. 21–22.6 km] E El Sauz, Starr County; Hwy. 755, 2.5 mi [ca. 4 km] NE Jct. 490, Starr County; Sam Fordyce Road, 0.5 mi [ca. 0.8 km] S Hwy. 83, Starr County; 16 mi [ca. 26 km] N, 1 mi [ca. 1.6 km] W Rio Grande City, Starr County.

Taranomis bivittata bivittata (Dupont, 1838:58)

Range.—New Mexico and Texas to central Mexico.
Adult Activity.—May, July to November.

Larval Hosts.—*Ficus* (Townsend 1902), *Acacia* (Linsley 1940), *Prosopis* (Rogers 1977*a*), "cosabe" (Duffy 1960), *Ulmus* (Turnbow and Wappes 1978), *Leucaena* (Hovore and Penrose 1982).

Discussion.—Adults, which are common on new growth of mesquite and on freshly cut *Acacia*, may also be collected from a variety of blossoms, including *Jatropha, Eysenhardtia, Sphaeralcea,* and *Prosopis*. On some early lists, this species appeared in the genus *Ischnocnemis*.

New Localities.—PG; 1 mi [ca. 1.6 km] SE Los Indios, Cameron County; BRG; SAR; 3 mi [ca. 4.8 km] S Pharr, Hidalgo County; 5.3 mi [ca. 8.5 km] E Rio Grande City, Starr County; Hwy. 281, 1.6 mi [ca. 2.6 km] S 83 BR, Hidalgo County; Hwy. 649, 1–6 mi [ca. 1.6–9.7 km] N Jct. Rt. 83, Starr County; 7 mi [ca. 11.3 km] SW El Sauz, Starr County; WWR; 3–7 mi [ca. 4.8–11.3 km] N Sinton, San Patricio County.

Lophalia cyanicollis (Dupont, 1838:59)

Range.—Arizona to Texas and southern Mexico.
Adult Activity.—October and November.

Discussion.—This species was abundant in October on foliage and blossoms of a variety of herbaceous and woody plants, including *Verbesina, Karwinskia,* and *Baccharis*. Specimens from Mexico (Sinaloa) are more elongate and may represent a different subspecies.

New Localities.—PG; SAR; Pharr, Hidalgo County; Hwy. 4, 6.8–7.2 mi [ca. 11–11.6 km] E Jct. 1419, Cameron County; BC.

Gnaphalodes trachyderoides Thomson, 1860:236

Range.—Central America to southern Texas.
Adult Activity.—April to October.
Larval Hosts.—*Acacia, Pithecellobium, Prosopis, Parkinsonia* (Linsley 1962*b*), *Celtis* (Hovore and Giesbert 1976), *Citrus* (Manley and French 1976), *Ulmus* (Turnbow and Wappes 1978), *Leucaena* (Hovore and Penrose 1982).

Discussion.—Adults are very common at night on freshly cut wood, and are readily attracted to lights. Thus far, this species has not been encountered outside the Lower Valley region.

New Localities.—PG; SAR; Hwy. 4, 10 mi [ca. 16 km] E Jct. 1419, Cameron County; Anzalduas Park, Hidalgo County; 2 mi [ca. 3.2 km] S Pharr, Hidalgo County; Brownsville, Cameron County.

Stenaspis verticalis insignis Casey, 1924:262

Range.—Southcentral Texas to northern Mexico.
Adult Activity.—June to November.

Discussion.—Adults of this species, like those of its congener, *S. solitaria* (Say), are strongly attracted to certain plant exudates. Aggregations of beetles, including many mating pairs, were encountered on stems of *Baccharis* in San Patricio County in October. Many of the *Stenaspis*, along with other insects, appeared to be feeding at oozing lesions created by scarab beetles (*Cotinis mutabilis* Gory and Percheron). Adults were also found on *Baccharis* foliage, and on blossoms and foliage of *Acacia, Serjania, Clematis, Cissus, Jatropha, Condalia,* and *Haplopappus*. Despite the abundance of adults of this large, red and blue species, the larval habits are unknown.

Specimens from central Texas (Comal County) have very little black coloration on the underside and pronotum and represent the typical subspecies phenotype, while material from further south shows varying degrees of character intermediacy with the nominate form or the western subspecies, *arizonicus* Casey.

New Localities.—6 mi [ca. 9.7 km] E Eagle Pass, Maverick County; PG; BC; 16 mi [ca. 26 km] N, 9 mi [ca. 14.5 km] W Rio Grande City, Starr County; 3–7 mi [ca. 4.8–11.3 km] N Sinton, San Patricio County; WWR.

Stenaspis solitaria (Say, 1824:410)

Range.—Southwestern U.S. to south Texas and northern Mexico, Baja California.
Adult Activity.—May to October.
Larval Hosts.—*Prosopis, Acacia* (Linsley 1962*b*).

Discussion.—Vogt (1949*a*) encountered this species in the uplands in May and June, and the host record for *Prosopis* (cited above from Linsley) was based upon observations of larvae he tentatively assigned to this genus. Pupae and adults of *S. solitaria* were taken from pupal cells in root crowns of dying *Acacia* in Arizona and western Texas (FTH). Adults frequent foliage and stems of *Acacia, Condalia,* and *Baccharis* in the southwestern U.S. and are very abundant on foliage of *Melochia* in the Cape Region of Baja California. Linsley and Cazier (1962) reported this species feeding upon, and apparently becoming intoxicated by, fermenting exudates of *Senecio* in Arizona.

New Localities.—3 mi [ca. 4.8 km] W, 5 mi [ca. 8 km] N Roma, Starr County.

Callona rimosa Buquet, 1840:142

Range.—Central Texas to northern Mexico.
Adult Activity.—April to June.
Larval Hosts.—*Prosopis, Acacia* (Vogt 1949*a*).

Discussion.—Vogt (1949*a*) discussed the larval habits of this bright metallic green species, commenting that adults were rarely collected except from their pupal chambers in bases of living mesquite and huisache. We took adults from foliage of infested mesquite and from foliage of *Baccharis* and other nonhost shrubs growing amongst the host trees, 2 mi [ca. 3.2 km] S Pharr,

Hidalgo County. We took several specimens in the Palm Grove Sanctuary, including an adventitious specimen beaten from hackberry foliage (RLP).

New Localities.—La Gloria, Starr County; Kingsville, Kleberg County; WWR.

Knulliana cincta cincta (Drury, 1773:85)

Range.—Eastern North America to western Texas, south to northern Mexico.

Adult Activity.—March to October.

Larval Hosts.—*Juglans, Carya, Castanea, Quercus, Celtis, Pyrus, Sapindus, Salix* (Linsley 1962*b*), *Prosopis* (Hovore and Giesbert 1976), *Citrus* (Dean 1953), *Leucaena* (Hovore and Penrose 1982).

Discussion.—This widespread species was abundant at night on limbs and trunks of newly felled hackberry, huisache, and tepehuaje in May and October. Adults are occasionally attracted to lights.

New Localities.—PG; SAR; BRG; Rio Grande City, Starr County; FSP; LCC; WWR.

Tragidion coquus (Linnaeus, 1758:393)

Range.—Eastern North America to Arizona, western and southern Texas.

Adult Activity.—August to November.

Larval Hosts.—*Quercus* (Linsley 1962*b*), *Prosopis* (Swenson, 1969).

Discussion.—A single male of this variably colored species was collected on blossoms of *Haplopappus* 6 mi [ca. 9.7 km] E Eagle Pass, Maverick County, in October (FTH).

Batyle suturalis cylindrella Casey, 1893:587

Range.—Western and southern Texas.

Adult Activity.—May to July.

Discussion.—Adults of this entirely red subspecies were taken on *Opuntia* and *Helianthus* blossoms 2 mi [ca. 3.2 km] S Pharr, Hidalgo County in May, and it is common on roadside flowers throughout the upland portions of southern Texas.

New Localities.—PG; BRG; 1–5 mi [ca. 1.6–8.1 km] N of the Jct. of Hwy. 35 on Hwy. 83, Webb County; 3 mi [ca. 4.8 km] N Sarita, Kenedy County.

Plionoma suturalis (LeConte, 1858*a*:25)

Range.—Southern California and northern Baja California to Texas and northern Mexico.

Adult Activity.—May to July, September to November.

Larval Hosts.—*Prosopis* (Linsley 1962*b*).

Discussion.—This species was encountered in the fall on fresh-cut mesquite and huisache, and in early summer on blossoms of leguminous trees. Some earlier lists recorded this species in the genus *Sphaenothecus*.

New Localities.—Brownsville and Los Indios, Cameron County; LCC.

Tylosis oculatus LeConte, 1850:9

Range.—Western and southern Texas to southern Mexico.

Adult Activity.—September to November.

Larval Hosts.—*Abutilon*?

Discussion.—As is typical of the genus *Tylosis*, adults frequent blossoms and foliage of malvaceous plants. Vogt (1949*a*) collected a small series of adults from roadside and canalbank stands of *Abutilon*, and we found these insects to be very abundant on a tall, red-flowered mallow in the Lower Valley. In the uplands, near Eagle Pass, we found large numbers of adults on a yellow-flowered, prostrate species of mallow. Larvae of *Tylosis jiminezi* Casey bore within roots of dead mallow (*Sphaeralcea* sp.) in western Texas (FTH, RLP), and the habits of *T. oculatus* are probably similar.

New Localities.—PG; SAR; BRG; Mission, Hidalgo County; 10 mi [ca. 16 km] SE Los Indios, Cameron County; BC; Sarita, Kenedy County (TAI); Kingsville, Kleberg County; 6 mi [ca. 9.7 km] E Eagle Pass, Maverick County.

Crossidius humeralis quadrivittatus Penrose, 1974:251

Range.—Southern Texas.

Adult Activity.—September to November.

Larval Hosts.—*Haplopappus* (sometimes listed as *Isocoma*) (Hovore and Giesbert 1976).

Discussion.—This subspecies is widespread and abundant on blossoms of its larval host in October. Collections were made at a number of localities along the coastal strand from San Patricio County south into Cameron County. A series from 6 mi [ca. 9.7 km] E Eagle Pass, Maverick County suggests that vittate populations of *humeralis* may be distributed with the larval host in suitable habitats throughout southern Texas.

New Localities.—10–14 mi [ca. 16–22.6 km] W Boca Chica, Cameron County; Arroyo City, Willacy County; Riviera Beach, Kleberg County; Kingsville, Kleberg County; WWR; Laguna Salada, Brooks County.

Crossidius suturalis melanipennis Penrose *in* Giesbert and Penrose, 1984:62

Range.—Coastal portions of southern Texas to extreme northern Mexico.

Adult Activity.—October to December.

Larval Hosts.—*Haplopappus drummondi*.

Discussion.—This highly melanic *suturalis* phenotype occurs with *C. humeralis quadrivittatus* in coastal habitats, where both may use the same species of host plant (*Haplopappus drum-*

mondi [T & G Greene]). Although the two species are microsympatric, they appear to be largely allochronic, peak numbers of *C. suturalis melanipennis* occur in November, when *C. humeralis quadrivittatus* activity wanes. Similar temporal stratification between the nominate forms of both species was observed in southeastern New Mexico (RLP).

New Localities.—Riviera Beach and Kingsville, Kleberg County; Laguna Salada, Brooks County.

Crossidius pulchellus LeConte, 1861:356

Range.—Alberta, Canada southward through the Great Plains to western Kansas, southern California, southern Texas, and northern Mexico.

Adult Activity.—August to November.

Larval Hosts.—*Gutierrezia* spp. (Linsley and Chemsak 1961), *Gymnosperma* (also listed as *Xanthocephalum*).

Discussion.—A small series of a highly melanic population was collected in October from blossoms of *Gymnosperma glutinosa* (Spreng.) Less., 8 mi [ca. 13 km] SE Beeville, Bee County (RLP, FTH).

Elytroleptus divisus (LeConte, 1884:23)

Range.—North-central to southern Texas.

Adult Activity.—April to July.

Discussion.—Vogt (1949*a*) collected adults from blossoms and foliage of *Karwinskia* and *Condalia* in the upland regions of Hidalgo and Starr counties in April and May, and we have likewise found it to be relatively common on those plants. Larval habits of the genus *Elytroleptus* are unrecorded.

New Localities.—1 mi [ca. 1.6 km] and 3 mi [ca. 4.8 km] W Roma, Starr County; 3 mi [ca. 4.8 km] N Laredo, Webb County (AEL); 45–55 mi [ca. 73–89 km] E Carrizo Springs, Hwy. 83, in Webb County (AEL).

Parevander hovorei Giesbert *in* Giesbert and Penrose, 1984:59

Range.—Southern Texas to central Mexico.

Adult Activity.—September to December.

Discussion.—This orange and black species was previously recorded from southern Texas as *P. xanthomelas* (Guerin) (Hovore and Giesbert 1976). Earlier faunal accounts did not include this species, and it may be that it has only recently colonized, or recolonized, southern Texas.

Austin (1880:60) in his North American checklist stated, ". . . add *Evander* Thoms. 9730 *xanthomelas* (Guer.)," but Leng (1886) later stated that "*Evander*" had not been found within our faunal limits, and he dropped it from his checklist. (The name *Evander* was incorrectly applied to New World species and was later replaced by *Parevander Aurivillius*).

Parevander is a Neotropical genus, with closely related species distributed into Central America; the adults are associated with disturbed-land plants (larval hosts are unknown). It therefore may be sensitive to long- or short-term environmental phenomena, experiencing population fluctuations or extinctions during droughts or frosts.

Parevander hovorei was taken in abundance in several previously well collected localities, often with *Mannophorus laetus*, from several members of the Compositae, including *Viguiera*, *Helianthus*, and *Verbesina*.

Trachyderes (Dendrobias) mandibularis (Audinet-Serville, 1834:42)

Range.—Southern Texas and northern Mexico.

Adult Activity.—March to November.

Larval Hosts.—*Celtis* (Hovore and Giesbert 1976), *Leucaena* (Hovore and Penrose 1982), *Pithecellobium*, *Ulmus*, *Acacia*.

Discussion.—This species is extremely abundant throughout southern Texas, frequenting a variety of blossoms, utilizing numerous types of freshly cut wood for mating and ovipositing activities, and often aggregating in large numbers on stems of *Baccharis*.

Specimens from the study area are assignable to the subspecies *virens* Casey, although not all material at hand matches the phenotype characterization given by Linsley (1962*b*). As he noted, south Texas specimens vary considerably in coloration; some individuals exhibit an expanded elytral pattern similar to that of the nominate subspecies. In our field-collected and reared specimens about 70% of the males show the typical reduced elytral pattern, while the remainder of the males and all the females have a greatly expanded elytral pattern, with the basal and median dark fasciae broadly united along the lateral margins. Thus there are two distinct patterns, each different from that of any other population seen, with a few individuals resembling the lightly marked males of the nominate taxon. Further, all of our specimens have the third antennal segment wholly black (it is yellow-annulated in typical *mandibularis* Audinet-Serville from western Texas and southeastern Arizona, and in *m. reductus* Casey, from the lower Colorado River Valley of Arizona and California), and there is distinctive allometric reduction of the develop-

ment of the male mandibles. The largest male *virens* (26 mm long) have mandibles approximately 30% smaller than those of comparably sized *mandibularis* from southeastern Arizona and Mexico and nearly 40% smaller than those of similarly sized *reductus*.

Both *virens* and *reductus* appear to represent distinctive local phenotypes, but a study of overall species variability, including analysis of Mexican and Baja Californian material, is needed to resolve their taxonomic status. Chemsak and Linsley (1975*a*, 1982) list *reductus* and *virens* as synonyms of *mandibularis*, but J. A. Chemsak (pers. comm.) informed us that these were typographical errors, not synonymies. Hüdepohl (1985) placed *Dendrobias* as a subgenus of *Trachyderes* Dalman, and eliminated all subspecies of *mandibularis*.

New Localities.—PG; BC; BRG; Pharr and Mission, Hidalgo County; LCC; WWR; 3–7 mi [ca. 4.8–11.3 km] N Sinton, San Patricio County.

Lissonotus flavocinctus puncticollis Bates, 1885:333

Range.—Northern Mexico and Baja California to southern Texas.

Adult Activity.—April to November.

Larval Hosts.—*Acacia* (Vogt 1949*a*), *Leucaena* (JEW).

Discussion.—Vogt (1949*a*) collected this species from goldenrod blossoms and on freshly cut *Acacia*, and J. E. Wappes reared these insects from tepehuaje collected in the Palm Grove Sanctuary. Adults have also been taken at light (AEL) and in pitfall traps in a cotton field (Huffman and Harding 1980). As with *Dendrobias* (discussed above), the described subspecies of *Lissonotus flavocinctus* are difficult to define geographically, and further study of Mexican populations is needed to clarify the relationships of the various phenotypes.

New Localities.—Pharr, Mercedes, and Mission, Hidalgo County.

Psyrassa texana Schaeffer, 1905*b*:160

Range.—Southern Texas.

Adult Activity.—May to August.

Discussion.—Linsley and Martin (1933) beat adults from *Acacia* and attracted them to lights. Several specimens were beaten from *Celtis* (FTH) and *Fraxinus* (JEW) in the palm grove. *Psyrassa texana* is very close to, if not synonymous with, the Mexican species *P. castanea* Bates.

New Localities.—LCC.

Psyrassa perfenuis (Casey, 1924:248)

Range.—Eastern North America from New York to Florida, west to southern Texas.

Adult Activity.—April to July.

Larval Hosts.—*Magnolia, Prunus, Carya* (Linsley 1963*a*).

Discussion.—Numerous specimens of this common Austroriparian species were collected at lights at Welder Wildlife Refuge in May.

Psyrassa brevicornis Linsley, 1934:164

Range.—Lower Rio Grande valley and lower Gulf Coast to Kleberg County.

Adult Activity.—May to September.

Discussion.—Linsley (1963*a*) stated that adults were captured on dead branches of *Acacia* and *Pithecellobium*, and numerous specimens were taken at lights.

New Localities.—BRG; PG; SAR; FSP; Kingsville, Kleberg County (TAI).

Psyrassa sallaei Bates, 1885:255

Range.—Southern Texas to north-central Mexico.

Adult Activity.—September to October.

Discussion.—The original description of this species is rather general, and may be applied to a number of Mexican species of *Psyrassa*, some of which are as yet undescribed. We therefore refer south Texan material to *sallaei* by comparison with determinations by Linsley (1963*a*) and Vogt (1949*a*, determined by Linsley). Texas specimens were taken at light (JEW) and by beating *Sapindus* (Vogt 1949*a*) and *Cordia* (Turnbow and Wappes 1978).

New Localities.—PG.

Stenosphenus notatus (Olivier, 1795:61)

Range.—Eastern North America to southern Texas.

Adult Activity.—April to July.

Larval Hosts.—*Carya, Celtis* (Linsley 1963*a*).

Discussion.—J. E. Wappes reared a single specimen of this Alleghenian species from wood of an unidentified legume from Santa Ana Refuge.

Stenosphenus lugens LeConte, 1862:41

Range.—Southern Texas to Mexico.

Adult Activity.—August to November.

Larval Hosts.—*Acacia* (Linsley 1963*a*), *Celtis* (Turnbow and Wappes 1978), *Leucaena* (Vogt 1949*a*; Hovore and Penrose 1982), *Zanthoxylum*.

Discussion.—Although rare in collections, adults of this species were extremely abundant on dead branches of their hosts and on blossoms

and foliage of *Baccharis*, *Serjania*, *Cissus*, and *Clematis*.

New Localities.—PG; BC; BRG; SAR.

Stenosphenus dolosus Horn, 1885:179

Range.—Central and southern Texas.

Adult Activity.—April to June, September to November.

Larval Hosts.—*Prosopis*, *Acacia* (Linsley 1963*a*), *Leucaena* (Hovore and Penrose 1982).

Discussion.—This beetle is relatively abundant in both spring and fall on blossoms and stems of *Helianthus* (Linsley and Martin 1933), *Solidago* and *Baccharis* (Vogt 1949*a*), *Aster*, and *Cissus*. Snow's record (1906) for *S. novatus* Horn (a Baja Californian species) may almost certainly be referred to this species.

New Localities: PG; BRG; Rio Grande City, Starr County; 1.4 mi [ca. 2.3 km] SE Carrizo Springs, Dimmit County; 1.8 mi [ca. 3 km] ESE Eagle Pass, Maverick County; Pharr, Hidalgo County; 25 mi [ca. 40 km] S Sarita, Kenedy County; Kingsville, Kleberg County; WWR.

Aneflus sonoranus Casey, 1924:241

Range.—Southern California to Sonora, Mexico, and southern Texas.

Adult Activity.—May to September.

Larval Hosts.—*Acacia* (WHT).

Discussion.—Vogt (1949*a*) collected a single adult in June from decadent *Condalia* in Starr County, and R. H. Turnbow took specimens at lights in Bentsen State Park, Hidalgo County, and in Zapata County. W. H. Tyson (pers. comm.) stated that larvae bore within living branches and trunks of catclaw acacia.

New Localities.—FSP.

Aneflus prolixus insoletus Chemsak and Linsley, 1963:88

Range.—Southern Texas to east-central Mexico.

Adult Activity.—May to September.

Larval Hosts.—*Acacia* (Rice et al. 1985).

Discussion.—Turnbow and Wappes (1978) recorded collecting adults at lights and from slash piles in September. The larvae breed in living roots and stem bases of *Acacia berlandieri* (Rice et al. 1985).

Aneflus protensus protensus (LeConte, 1858*b*:82)

Range.—Southeastern Arizona to Baja California, northern Mexico and southern Texas.

Adult Activity.—June to September.

Larval Hosts.—*Prosopis* (Linsley 1963*a*).

Discussion.—Vogt (1949*a*) collected adults from dead mesquite branches in Starr County in June and July. In Arizona this species is commonly attracted to lights.

New Localities.—FSP.

Aneflomorpha tenuis (LeConte, 1854*a*:81)

Ranges.—Southwestern Texas to northern Mexico.

Adult Activity.—May to September.

Discussion.—Adults have been taken on *Acacia* (Linsley and Martin 1933), on blossoms of *Karwinskia* (Turnbow and Wappes 1981), and at lights.

New Localities.—FSP; BRG; LCC; WWR; SAR.

Aneflomorpha seminuda Casey, 1912:294

Range.—Western to southern Texas.

Adult Activity.—April to July.

Discussion.—This nocturnal longhorn, which is not uncommon at lights in western Texas, was recently recorded from the Lower Valley region (Turnbow and Wappes 1978).

New Localities.—BRG (AEL).

Aneflomorpha opacicornis Linsley, 1957*b*:285

Range.—Western to southern Texas.

Adult Activity.—July to September.

Discussion.—Specimens tentatively assigned to this species were collected at lights in Falcon Heights, Zapata County, in September (RHT, JEW).

Axestinus obscurus LeConte, 1873:177

Range.—Southeasten Arizona to western and southern Texas and northern Mexico.

Adult Activity.—May to July.

Discussion.—Although we have not seen any south Texas specimens of this Sonoran elaphidiine, we include it herein by the type locality: "Rio Grande Valley?" (fide Linsley 1963*a*). Adults are common at lights in western Texas, southern New Mexico, and southeastern Arizona, but larval habits are unknown. Specimens in the University of California, Berkeley, collection are from "La Gloria, south of Monclova," Coahuila, Mexico, approximately 200 km southwest of Laredo, Webb County.

Sphaerion exutum (Newman, 1841:93)

Range.—Argentina and Brazil to southern Mexico and southern Texas (based upon records from Blackwelder [1946] and Linsley [1961*a*]).

Adult Activity.—May.

Discussion.—This tropical species was first recorded from the U.S. on the basis of eight specimens collected on dead ebony at Bentsen–Rio

Grande Valley State Park in May, 1972 and May, 1973 (Giesbert and Hovore 1976). An additional male specimen was taken at that locality on dead *Acacia* in May, 1980 (FTH).

Enaphalodes hispicornis (Linnaeus, 1767*a*:634)

RANGE.—North America from California to Idaho, Minnesota, New Jersey, Florida, Texas, and extreme northern Mexico.

ADULT ACTIVITY.—June to October.

LARVAL HOSTS.—*Quercus* (Linsley 1963*a*).

DISCUSSION.—Linsley (1963*a*, fig. 23) showed a locality for this widely distributed species near Corpus Christi, Nueces County. The larval host, oak, occurs in dense formations on the sandsheets of Kleberg County and sporadically over much of the northern portion of the study area.

Enaphalodes taeniatus (LeConte, 1854*a*:81)

RANGE.—Central to southern Texas and extreme northern Mexico.

ADULT ACTIVITY.—April to September.

LARVAL HOSTS.—*Citrus* (Dean 1953).

DISCUSSION.—This attractive beetle is never particularly common; a few specimens have been taken under loose bark of willow (Linsley and Martin 1933) and at lights.

NEW LOCALITIES.—PG, BRG; SAR.

Enaphalodes rufulus (Haldeman, 1847:32)

RANGE.—Eastern North America from Canada to Florida, western and southern Texas.

ADULT ACTIVITY.—June to August.

LARVAL HOSTS.—*Quercus, Acer* (Linsley 1963*a*).

DISCUSSION.—Several specimens of *E. rufulus,* the red oak borer, were taken at lights at Welder Wildlife Refuge, and we observed evidence of heavy infestation in oak near the refuge headquarters. The southern limits of *E. rufulus* in Texas probably correspond to those of the primary host, oak.

Enaphalodes atomarius (Drury, 1773:93)

RANGE.—Eastern North America from Canada to Florida, west to Texas, Arizona, and Central America.

ADULT ACTIVITY.—May to September.

LARVAL HOSTS.—*Quercus, Castanea, Celtis, Juglans, Carya, Chamaerops* (Linsley 1963*a*).

DISCUSSION.—We have not seen any specimens from the study area, but Linsley (1963*a*, fig. 26) showed the species as occurring in the Lower Valley, and Townsend (1902) reported taking a specimen in a mail sack from Alice, Jim Wells County. Chemsak et al. (1980) recently recorded specimens from Honduras, and there is a specimen in the TAI collection (determination not verified) of either this species or its cryptic sibling, *E. cortiphagus* (Craighead), from Welder Wildlife Refuge.

Eustromula validum (LeConte, 1858*b*:82)

RANGE.—Southern California to southern Texas, northern Mexico and Baja California.

ADULT ACTIVITY.—May to August.

LARVAL HOSTS.—*Prosopis, Cercidium, Parkinsonia* (Linsley 1963*a*), *Salix* (Hovore and Giesbert 1976).

DISCUSSION.—This nondescript species is commonly attracted to lights in the desert regions of the American southwest. Vogt (1949*a*) took a single specimen at a light in Starr County in May.

Elaphidion linsleyi Knull, 1960:7

RANGE.—Western to southern Texas.

ADULT ACTIVITY.—March to October.

LARVAL HOSTS.—*Salix* (Turnbow and Wappes 1981), *Baccharis, Ungnadia* (Rice et al. 1985).

DISCUSSION.—The presence of a somewhat intermediate condition in the development of the femoral spines in southern Texas material, particularly female specimens, suggests that this taxon may only be a western subspecies of the widespread *E. mucronatum* (Say). In the south Texas hypodigm, femoral spines range from short and rounded to prolonged and acute, but they are never as pronounced as in typical *mucronatum.* It has also been suggested (Turnbow and Wappes 1981, based upon analysis of two separate reared series of specimens displaying intergrading characters) that *linsleyi* may be hybridizing with *E. mimeticum* on *Salix* in the Brownsville (Cameron County) area.

Vogt's (1949*a*) record of *Elaphidionoides incertus* from willow may be based in part upon specimens of this species, or "*linsleyi* × *mimeticum*" hybrids. Larvae, pupae, and adults of *E. linsleyi* were cut from injured *Baccharis* near Del Rio, Val Verde County (FTH, RLP).

Elaphidion mimeticum Schaeffer, 1905*a*:132

RANGE.—Southern Texas and extreme northeastern Mexico.

ADULT ACTIVITY.—April to October.

LARVAL HOSTS.—*Salix.*

DISCUSSION.—Adults of this species hide during the day beneath loose bark of willow, acacia, hackberry, and ash (Linsley and Martin 1933) and may be found at night on dead host trees. They have also been taken in molasses bait and have been attracted to lights. *Elaphidion mimeticum* was recorded on some earlier lists as

the very similar-appearing *E. irroratum* Linnaeus, an Antillean species.

New Localities.—PG; BRG; FSP; WWR; SAR.

Elaphidionoides villosus (Fabricius, 1792:302)

Range.—Eastern North America to Texas and Arizona.
Adult Activity.—March to July.
Larval Hosts.—*Quercus, Carya, Castanea, Prunus, Vitis, Abies, Malus, Tilia, Wisteria, Cladrastis, Gleditsia, Celtis, Acer, Juglans,* among others (Linsley 1963*a*), *Citrus* (Dean 1953).

Discussion.—This is a common eastern species, utilizing a broad variety of larval hosts. Recent rearings from Rio Grande valley *Citrus* provide the only known southern Texas records, and we have not been able to verify the determination.

Elaphidionoides incertus (Newman, 1840:28)

Range.—Eastern North America to southern Texas.
Adult Activity.—May to September.
Larval Hosts.—*Morus, Quercus, Carya* (Linsley 1963*a*).

Discussion.—Vogt (1949*a*) recorded the capture of two specimens from beneath bark of willow (see discussion of *E. linsleyi*, above), and we took a few adults, including a mating pair, from dead *Celtis* at night in Bentsen State Park and Santa Ana Refuge. Adults are attracted to lights and fermenting molasses baits.

New Localities.—PG; WWR.

Elaphidionoides aspersus (Haldeman, 1847:32)

Range.—Atlantic states to Iowa and Texas.
Adult Activity.—May to August.
Larval Hosts.—*Carya, Quercus* (Linsley 1963*a*).

Discussion.—There appear to be more than two species involved in the material examined in the *incertus-aspersus* species complex, and determinations of specimens listed herein follow the concepts of Linsley (1963*a*). Verified records include a specimen from Brownsville, Cameron County (RWN) and another from Kingsville, Kleberg County (TAI).

Anelaphus niveivestitus (Schaeffer, 1905*a*:132)

Range.—Southern Texas.
Adult Activity.—April to July.

Discussion.—This diminutive species is commonly attracted to lights, and has been beaten from branches of ash (Linsley and Martin 1933), hackberry, and tepehuaje. R. H. Turnbow took specimens in fermenting molasses bait in the Palm Grove Sanctuary.

New Localities.—BRG; WWR.

Anelaphus debilis (LeConte, 1854*b*:442)

Range.—Central Texas to northeastern Mexico.
Adult Activity.—March to June, October.
Larval Hosts.—*Prosopis* (Hovore and Giesbert 1976), *Baccharis, Pithecellobium, Celtis* (Turnbow and Wappes 1978), *Leucaena* (Hovore and Penrose 1982), *Acacia.*

Discussion.—Adults of this species were commonly collected at lights, at fermenting molasses bait (RHT), and by beating dead branches of larval hosts. Linsley and Martin's (1933) record of "*Anoplium truncatum* LeConte," and Vogt's (1949*a*) "*Anelaphus truncatus* (Hald)" probably referred to *A. debilis, A. spurcus,* or *A. inermis.* All three are similar in coloration and form and were consistently misidentified in material examined during this study.

New Localities.—FSP; Rio Grande City, Starr County; 6–7 mi [ca. 9.7–11.3 km] NE Roma, Starr County; Zapata, Zapata County; PG; LCC; WWR.

Anelaphus spurcus (LeConte, 1854*b*:442)

Range.—Central Texas to northeastern Mexico.
Adult Activity.—April to June.

Discussion.—Adults were attracted to lights in spring and early summer and were taken from beneath loose bark of dead ebony and tepehuaje.

New Localities.—PG; SAR, BRG; Zapata and Lopeño, Zapata County; LCC; WWR.

Anelaphus inermis (Newman, 1840:29)

Range.—Southeastern U.S. to Texas, West Indies, and Mexico.
Adult Activity.—April to June, September to November.
Larval Hosts.—*Citrus, Quercus, Carya, Ichyomethia* (Linsley 1963*a*).

Discussion.—This widespread species was collected at lights and by beating freshly fallen *Yucca* trunks in Starr County in May. Hubbard (1885) and Manley and French (1976) reported rearing adults from *Citrus.* Specimens from the Antillean faunal region differ slightly from Texan and Mexican specimens and may prove to be a separate subspecies.

New Localities.—3 mi [ca. 4.8 km] W. 5 mi [ca. 8 km] N Roma, Starr County; PG; BRG; LCC; WWR; FSP.

Anelaphus moestus moestus (LeConte, 1854*b*:442)

Range.—Western Arizona to Texas and northern Mexico.
Adult Activity.—April to October.
Larval Hosts.—*Juglans* (Linsley 1963*a*), *Quercus* (Hovore and Giesbert 1976), *Celtis* (Turnbow and Wappes 1978), *Rhus* (Rice et al. 1985).

Discussion.—This beetle is abundant throughout its range, commonly coming to lights and fermenting molasses bait. Vogt (1949*a*) took

adults beneath *Celtis* bark and on fire-killed *Opuntia*.

New Localities.—PG; BRG; 2 mi [ca. 3.2 km] S Pharr, Hidalgo County; FSP.

Elaphidionopsis fasciatipennis Linsley, 1936:467

Range.—Western and southern Texas to northern Mexico.
Adult Activity.—May to September.

Discussion.—This attractive species is very rare in collections; the few specimens we saw were collected at lights in western Texas. A single specimen was attracted to building lights at Falcon Heights, Zapata County, in September (RHT).

Heterachthes ebenus Newman, 1840:9

Range.—Eastern portions of North and South America; Mexico; West Indies.
Adult Activity.—January to August.
Larval Hosts.—*Pinus* (Craighead 1923).

Discussion.—If the larval association with *Pinus* is valid, then other plants must also serve as hosts, since pines are not found over most of the range of this species. Two specimens were taken at Welder Wildlife Refuge, one from dead huisache in May (FTH) and one in a UV light trap in August (RHT).

Heterachthes nobilis LeConte, 1862:41

Range.—Southern Texas.
Adult Activity.—April to August.
Larval Hosts.—*Prosopis* (Linsley 1963*a*; Hovore and Giesbert 1976).

Discussion.—Adults are not common in collections, most specimens having been taken at lights or on decadent mesquite. A few adults were reared from fire-killed branches of this host.

New Localities.—BRG; 2 mi [ca. 3.2 km] S Pharr, Hidalgo County; Rio Grande City, Starr County; SAR; WWR.

Neocompsa exclamationis (Thomson, 1860:201)

Range.—Southern Texas to Chiapas, Mexico.
Adult Activity.—April to August.
Larval Hosts.—*Mimosa* (Craighead 1923), *Leucaena* (Hovore and Penrose 1982), *Zanthoxylum*.

Discussion.—This large ibidionine has been taken during the day from rotten branch stubs of *Acacia*, *Mimosa*, and *Celtis* (Linsley and Martin 1933), from beneath loose bark, and on slash of colima and ebony. Adults were common at lights in the palm grove and were also found at night on tepehuaje blossoms.

New Localities.—BRG; Anzalduas Park, Hidalgo County.

Neocompsa mexicana (Thomson, 1865:573)

Range.—Southern Texas to Guatemala and Costa Rica.
Adult Activity.—March to November.
Larval Hosts.—*Acacia* (Craighead 1923), *Pithecellobium* (Linsley 1963*a*), *Celtis* (Turnbow and Wappes 1978), *Leucaena* (Hovore and Penrose 1982), *Zanthoxylum*.

Discussion.—This species appeared on previous lists as "*Ibidion townsendi* Linell," and was also once referred to as *Neocompsa hippopsioides* (Bates) (Martins and Chemsak 1966); both names are now considered synonyms of *N. mexicana*. Large numbers of adults were reared and taken from dead tepehuaje branches in the palm grove.

New Localities.—BRG; SAR.

Neocompsa intricata Martins, 1970:1088

Range.—Eastern Mexico to southern Texas.
Adult Activity.—May to October.

Discussion.—This species was previously collected in Texas, but earlier material was recorded as either "*Compsa textilis* var. *alacris* Bates" (Linsley and Martin 1933), or "*Compsa alacris*" (Linsley 1963*a*). According to Martins (1970), *Neocompsa alacris* (Bates) is distributed primarily along the Pacific slope of Mexico and Central America, and the occurrence of this species in Texas is very doubtful. Linsley (1963*a*) recorded "*Compsa quadriplagiata* (LeConte)" (=*Neocompsa*) from southern Texas, based upon the type locality (Brownsville, Cameron County) of a junior synonym, *Ibidion pubescens* Casey. Martins considered the Casey holotype to be mislabeled, and extant distributional data for *Neocompsa quadriplagiata* restricts it to Baja California Sur and the Pacific slope of Mexico.

Single specimens of *N. intricata* were beaten from *Baccharis* (RLP) and taken from herbaceous foliage (JEW) in October.

New Localities.—BC; WWR.

Neocompsa puncticollis orientalis Martins and Chemsak, 1966: 466

Range.—Southern Texas to Oaxaca, Mexico.
Adult Activity.—May to August.

Discussion.—Vogt (1949*a*) collected a single specimen, tentatively referred to this subspecies by Martins (1970), at lights in Pharr, Hidalgo County, in August.

Piezocera serraticollis Linell, 1896:394

Range.—Southern Texas, and perhaps also southern Mexico to Panama.
Adult Activity.—April to June.
Larval Hosts.—*Celtis* (Turnbow and Wappes, 1978).

Discussion.—Specimens of this peculiar beetle were beaten from dead branches of *Celtis, Pithecellobium,* and *Prosopis.* Martins (1976) suggested that *serraticollis* and *P. monochroa* Bates may be conspecific; due to insufficient material, Martins retained the two taxa as distinct, tentatively assigning several specimens from Mexico and Central America to *serraticollis.*

New Localities.—PG; BRG.

Obrium rufulum Gahan, 1908:142

Range.—Eastern North America to Texas.
Adult Activity.—April to July.
Larval Hosts.—*Fraxinus* (Linsley, 1963*a*).

Discussion.—This Alleghenian species is known from the study area by material from Kingsville, Kleberg County, collected in April (TAI).

Obrium maculatum (Olivier, 1795:32, 39)

Range.—North America from eastern Canada to Florida and southern California, south to Costa Rica.
Adult Activity.—March to October.
Larval Hosts.—*Carya, Quercus, Castanea, Celtis, Morus, Maclura, Cercis, Acacia* (Linsley 1963*a*), *Ficus* (Townsend 1902), *Citrus* (Manley and French 1976), *Leucaena* (Vogt 1949*a*; Hovore and Penrose 1982), *Sapindus* (Vogt 1949*a*).

Discussion.—Adults are abundant on dead twigs and branches of the larval hosts, and are also readily attracted to lights.

New Localities.—PG; 8 mi [ca. 13 km] SE Zapata, Zapata County; BRG; FSP; LCC; WWR.

Obrium mozinnae Linell, 1896:395

Range.—Southern Texas to Tamaulipas, Mexico.
Adult Activity.—April to June.
Larval Hosts.—*Leucaena* (Hovore et al. 1978). *Prosopis* (Turnbow and Wappes 1978).

Discussion.—This tiny, bicolored species is often abundant on blossoms of leguminous trees and shrubs and is also attracted to lights.

New Localities.—PG; BRG; Anzalduas Park, Hidalgo County; SAR; La Lomita Park, Hidalgo County; Southmost sector, Brownsville, Cameron County.

Nathriobrium methioides Hovore, 1980:116

Range.—Southern Texas.
Adult Activity.—November to January.
Larval Hosts.—*Pithecellobium* (Hovore 1980), *Diospyros* (Turnbow and Wappes 1981), *Zanthoxylum* (Rice et al. 1985).

Discussion.—This unusual, monotypic genus appears most closely related to genera from southern South America. The few known specimens, all reared, emerged from ebony, Texas persimmon, and colima. Turnbow and Wappes (1981) described and figured the larval workings in persimmon.

New Localities.—PG.

Plinthocoelium suaveolens plicatum (LeConte, 1853:233)

Range.—Central Texas to Arizona and northern Mexico.
Adult Activity.—May to August.
Larval Hosts.—*Bumelia* (Linsley 1964).

Discussion.—R. H. Turnbow (pers. comm.) reported the collection of a single specimen in a light trap at Welder Wildlife Refuge in August. This is the only light collection record we have seen for the species, but some tropical Callichromatini readily come to UV lights. Adults were collected from foliage of the larval host in fermenting baits.

Plinthocoelium schwarzi (Fisher, 1914:97)

Range.—Southern Texas.
Adult Activity.—March to May.

Discussion.—This metallic green species fades postmortem to deep cobalt blue. Adults frequent blossoms of *Condalia* and *Cissus* in the upland regions of the Lower Valley, and are strong, swift flyers, making capture quite difficult. When disturbed they emit a milky substance described by Vogt (1949*a*) as having an odor like that of butyraldehyde. This substance may act as an alarm pheromone, as many individuals will take flight when one is captured.

New Localities.—PG; 3 mi [ca. 4.8 km] W, 5 mi [ca. 8 km] N Roma, Starr County.

Ornithia mexicana mexicana (Sturm, 1843:354)

Range.—Southern Texas to Panama.
Adult Activity.—April to August.

Discussion.—The only North American record for this striking species is Vogt's (1949*a*) collection of a single specimen from beneath bark of *Celtis.* We have not seen Vogt's specimen and so have listed it as the nominate subspecies. Linsley's figure (1964:10, fig. 3) is of the form designated as *zapotensis* Tippmann, from Guatemala and Sinaloa, Mexico. Adults of both subspecies are common on a variety of deadwood and on blossoms in Mexico and Central America.

Hylotrupes bajulus (Linnaeus, 1758:396)

Range.—Europe, Asia, North and South America, Asia Minor, eastern Mexico, and Texas.
Adult Activity.—July to September.
Larval Hosts.—*Pinus, Picea, Abies, Populus, Alnus, Cor-*

ylus, Quercus, Genista, Conium, Acacia, Tamarix, among others (Duffy 1960).

Discussion.—This is the "Old House Borer" of economic literature—a species capable of causing considerable structural damage to a wide variety of wood products, including framing timbers, roofing, and flooring. It has been spread into many areas in North America in imported wood; a single record from Brownsville, Cameron County (RWN) has been seen from southern Texas.

Megacyllene caryae (Gahan, 1908:141)

Range.—Eastern North America to Texas and northern Mexico.

Adult Activity.—September to November (Texas and northern Mexico only).

Larval Hosts.—*Carya, Juglans, Morus, Celtis, Maclura, Vitis, Ulmus, Fraxinus, Gleditsia, Prosopis* (Linsley, 1964).

Discussion.—Adults of this large clytine are common in the fall on freshly cut mesquite, being most active during the late afternoon. This species was reared from burned mesquite logs gathered near Rio Grande City, Starr County, and specimens were collected in San Patricio County from stems and foliage of *Baccharis,* in company with *Stenaspis, Placosternus,* and *Dendrobias.* Interestingly, *M. caryae* is active only during the spring months over most of its range, but is a fall-active species in southern Texas.

New Localities.—BRG; LCC; WWR; Corpus Christi, Nueces County; 3–7 mi [ca. 4.8–11.3 km] N Sinton, San Patricio County.

Placosternus difficilis (Chevrolat, 1862:263)

Range.—Florida and the West Indies, northern Mexico, Texas, and southern California.

Adult Activity.—February to November.

Larval Hosts.—*Prosopis, Acacia, Pithecellobium, Platanus* (Linsley 1964), *Citrus* (Manley and French 1976), *Leucaena* (Hovore and Penrose 1982).

Discussion.—Adults are active day and night, running rapidly along freshly cut branches of their host plants and feeding on the blossoms of *Koeberlinia, Acacia* (Vogt 1949*a*), *Baccharis, Bumelia, Clematis,* and *Solidago.* They are readily attracted to lights, and are common in both the spring and fall activity periods. This is the *Cyllene crinicornis* of older lists.

New Localities.—PG; BRG; Anzalduas Park, Hidalgo County; SAR; 27 mi [ca. 44 km] S Sarita, Kenedy County; Kingsville, Kleberg County; Sinton, San Patricio County; WWR; LCC.

Placosternus erythropus (Chevrolat, 1835:fasc. 4, no. 95)

Range.—Texas to Guatemala.

Adult Activity.—March to October.

Larval Hosts.—*Acacia, Prosopis* (Duffy 1960).

Discussion.—In the fall, adults were abundant on *Baccharis* stems and on a variety of blossoming vines in the palm grove and at Welder Wildlife Refuge, and on *Condalia* and *Bumelia* flowers in the uplands near El Sauz, Starr County. Duffy cited host records for this species (listed as "*Megacyllene* [*Cyllene*] *erythropa*") by quoting older references, and we have seen no reared material.

New Localities.—Hwy. 649, 1.6 mi [ca. 2.6 km] N Jct. Rt. 83, Starr County; 3–7 mi [ca. 4.8–11.3 km] N Sinton, San Patricio County.

Ochraethes citrinus Chevrolat, 1860:474

Range.—Western Texas to southern Mexico.

Adult Activity.—September to November.

Discussion.—This species is included on the basis of several old specimens labelled only as having come from Hidalgo or Cameron County. We have not verified the determination and therefore list these specimens as *citrinus,* following Linsley (1964). Valid *citrinus* localities seen include 17 km S Saltillo, Coahuila, Mexico (FTH), and Big Bend National Park, Brewster County, Texas (MER). Most specimens were taken from blossoms of Compositae.

Tanyochraethes tildeni Chemsak and Linsley, 1965:148

Range.—Southern Texas to extreme northern Mexico.

Adult Activity.—October to November.

Discussion.—Adults of this species were taken from inflorescences of *Eriogonum* and *Solidago* growing on the sandsheets of Kenedy County in October (Hovore and Giesbert 1976). The yellow elytral vestiture is typically arranged into humeral, antemedian, median, and postmedian bands that have internally coalesced with the sutural vitta. In our material, however, many individuals have portions of the pattern, or even the entire elytral surface, suffused with yellow pubescence. In some specimens the patterns were altered or obliterated by abrasion.

Neoclytus mucronatus vogti Linsley, 1957*a*:35

Range.—Southern Arizona to southern Texas and northern Mexico.

Adult Activity.—March to October.

Larval Hosts.—*Celtis, Ulmus, Parkinsonia* (Vogt 1949*a*), *Prosopis* (Turnbow and Wappes 1978).

Discussion.—A series of this colorful subspecies was taken from fresh-cut *Celtis* in May and again in October, in Bentsen State Park, Hidalgo County. Adults were also collected on *Baccharis,* and several beetles were found at night on dead elm trees. Larvae heavily infest dead trunks and

branches of the hosts, reducing most of the heartwood to frass and fecula. Typically, *N. m. vogti* is lighter in coloration and more strikingly marked than the widely distributed nominate subspecies; however, as Linsley (1957*a*) noted, there is considerable intermediacy in coloration in material from central and eastern Texas. Specimens from near San Antonio, Bexar County, cannot be placed with certainty in either subspecies; most of these specimens closely resemble material from the eastern U.S.

New Localities.—2 mi [ca. 3.2 km] S Pharr, Hidalgo County; WWR; LCC.

Neoclytus acuminatus hesperus Linsley, 1935*b*:163

Range.—Colorado, New Mexico, southern Texas.

Adult Activity.—March to October.

Larval Hosts.—*Quercus* (Linsley 1964), *Acacia* (Linsley and Martin 1933), *Citrus* (Manley and French 1976), *Baccharis, Prosopis* (Turnbow and Wappes 1978), *Zanthoxylum* (Turnbow and Wappes 1981), *Celtis*.

Discussion.—Adults are wary and quick to fly at the slightest disturbance, making capture difficult. The nominate subspecies, often called the "red-headed ash borer," is a well-known pest that breeds on a variety of hardwood trees in the eastern U.S. Lighter integumental coloration, the primary separating character for the subspecies *hesperus*, is variable and difficult to quantify in material examined from the total species range. The subspecies was originally defined from a single specimen from Colorado, and uniformly reddish coloration is found in a number of populations peripheral to the range of *N. a. acuminatus*, including those from southern Texas material.

New Localities.—PG; BRG; 2 mi [ca. 3.2 km] S Pharr, Hidalgo County; LCC; WWR.

Neoclytus augusti Chevrolat, 1835:fasc. 4, no. 73

Range.—Southern Texas to northern Mexico.

Adult Activity.—March to October.

Larval Hosts.—*Sapindus* (Vogt 1949*a*), *Citrus* (Manley and French 1976, 1977), *Prosopis, Ulmus, Celtis* (Turnbow and Wappes 1978).

Discussion.—Vogt (1949*a*) collected a series of adults from weakened *Baccharis*, and Hovore (1983) discussed *augusti*-like material from *Baccharis* in western Texas. On earlier lists (except Manley and French 1976, 1977) this species appeared as *N. abbreviatus* Schaeffer, a junior synonym.

Euderces reichei exilis Casey, 1893:591

Range.—Southern Texas to Tamaulipas, Mexico.

Adult Activity.—March to October.

Larval Hosts.—*Sapindus* (Vogt 1949*a*), *Celtis, Prosopis* (RHT), *Acacia, Zanthoxylum*.

Discussion.—Although this tiny ant-mimicking beetle was recorded as having been beaten (Vogt 1949*a*) or reared (Linsley 1940) from a variety of shrubs and trees, specific host data were rather scant. Our *Acacia* specimens emerged from a branch, 3 cm in diameter, girdled by *Oncideres pustulatus* LeConte at Kingsville, Kleberg County. Adults are very common on deadwood and at blossoms of a variety of woody and herbaceous plants. Linsley (1964) cited the distribution of this subspecies as Hidalgo and Cameron counties, but specimens from Zapata County on the west side of the state, and San Patricio County on the Gulf Coast, based upon the relative development of the antennal spines, are also referable to *exilis*. The nominate taxon is distributed throughout the southcentral U.S.

New Localities.—BRG; PG; SAR; LCC; 8 mi [ca. 13 km] SE Zapata, Zapata County; 5.3 mi [ca. 8.5 km] E Rio Grande City, Starr County; WWR; La Lomita Park, Hidalgo County; 3 mi [ca. 4.8 km] S Mission, Hidalgo County.

Tetranodus niveicollis Linell, 1896:396

Range.—Southern Texas south to Oaxaca, Mexico.

Adult Activity.—May to June.

Larval Hosts.—*Pithecellobium* (Turnbow and Wappes 1981).

Discussion.—Adults were beaten from *Mimosa, Acacia* (Linsley and Martin 1933), and *Prosopis* (FTH), and two specimens were reared from dead ebony gathered near Boca Chica, Cameron County.

New Localities.—PG; LCC; Brownsville, Cameron County.

Pentanodes dietzii Schaeffer, 1904:222

Range.—Southern Texas.

Adult Activity.—Unknown.

Discussion.—The unique holotype and allotype were reportedly collected at Brownsville, Cameron County, with no further data supplied by their describer. No other specimens are known.

Dihammophora dispar Chevrolat, 1859:52

Range.—Southern Texas to Mexico.

Adult Activity.—Unknown for Texas; one specimen seen from Oaxaca, Mexico in August.

Discussion.—This species is occasionally collected from blossoms and on deadwood in Mexico. Aside from Schaeffer's (1908) record from Brownsville, Cameron County, based upon material in the Dietz collection (which contains a number of unduplicated records), we know of no other Texas specimens.

Rhopalophora angustata Schaeffer, 1905*b*:162

RANGE.—Southern Texas and northern Mexico.
ADULT ACTIVITY.—March to October.
LARVAL HOSTS.—*Citrus* (Manley and French 1976), *Pithecellobium, Eysenhardtia* (Turnbow and Wappes 1978), *Zanthoxylum, Diospyros* (Turnbow and Wappes 1981).

Discussion.—This graceful species was abundant on flowering *Baccharis* at Welder Wildlife Refuge in October, and adults were also beaten from dead twigs of granjeño and ebony (Hovore and Giesbert 1976). Specimens have been collected from blossoms of *Monarda* (Vogt 1949*a*) and *Clematis*.

NEW LOCALITIES.—PG; LCC; 5.3 mi [ca. 8.5 km] SE Rio Grande City, Starr County; 3 mi [ca. 4.8 km] N Roma.

Rhopalophora laevicollis (LeConte, 1873:193)
(Figure 6)

RANGE.—Southern Texas to southern Mexico.
ADULT ACTIVITY.—May to October.
LARVAL HOSTS.—*Citrus* (Manley and French 1976), *Pithecellobium, Diospyros, Zanthoxylum* (Turnbow and Wappes 1981).

DISCUSSION.—Adults often are common on fresh-cut limbs of larval hosts, on *Celtis*, and at blossoms of *Clematis, Cissus, Serjania, Sambucus, Helianthus, Mimosa, Baccharis,* and *Haplopappus*.

NEW LOCALITIES.—PG; Rio Grande City, Starr County; LCC; WWR.

Rhopalophora rugicollis (LeConte, 1858*b*:83)

RANGE.—Texas and northern Mexico to northern Arizona and the Cape Region of Baja California.
ADULT ACTIVITY.—March to June.
LARVAL HOSTS.—*Celtis* (Tyson 1970), *Pithecellobium* (Turnbow and Wappes 1978).

DISCUSSION.—Linsley and Martin (1933) took this species on willow (Linsley and Martin 1933) in the Lower Valley, and in other portions of the species range, adults have been collected from blossoms of *Mimosa, Acacia, Lupinus,* and *Ceanothus*.

NEW LOCALITIES.—LCC.

Rhopalophora longipes longipes (Say, 1823:426)

RANGE.—Eastern North America to Kansas and Texas.
ADULT ACTIVITY.—May to June.
LARVAL HOSTS.—*Cercis, Cornus* (Linsley 1964).

DISCUSSION.—Two specimens, which are tentatively referred to this common eastern species, were collected from white Compositae growing along the roadside 11 mi [ca. 18 km] S Three Points, Webb County, in May (FTH). Although *R. l. meeskei* Casey is known from as near as montane western Texas, the relative pronotal proportions of the two specimens preclude their placement with that subspecies. *Rhopalophora longipes* rather closely resembles *R. bicolorella* Knull, from southern Arizona, but it differs by having slightly coarser pronotal punctures, very slightly sparser elytral punctation, and a less-pubescent dorsal surface. Other *longipes*-like specimens have been seen from central Mexico and the Cape Region of Baja California, and the Neotropical species of *Rhopalophora* need a comprehensive taxonomic review before a definitive determination can be made on our material.

Agallisus lepturoides (Chevrolat, 1849:12)

RANGE.—Southern Texas(?) to Honduras.
ADULT ACTIVITY.—Unknown for Texas.

DISCUSSION.—This exotic species has been listed from Texas several times, but we have been unable to locate or collect any U.S. material. The genus is structurally similar to other Agallisini (*Zagymnus* and *Osmopleura*), species of which breed in dead fronds and floral scapes of Palmaceae. A similar host association for *Agallisus* would restrict its range in Texas to remnant sabal palmetto groves in the Lower Valley.

Ancylocera bicolor (Olivier, 1795:32)

RANGE.—Southeastern North America to western Texas.
ADULT ACTIVITY.—April to July.
LARVAL HOSTS.—*Carya, Quercus* (Fattig 1947), *Celtis* (Turnbow and Wappes 1978), *Acacia* (Turnbow and Wappes 1981).

DISCUSSION.—Vogt (1949*a*) collected this peculiar-looking beetle on *Acacia, Baccharis,* and fresh-cut *Leucaena*. We took numerous specimens in southern Texas from cedar elm slash and from blossoms of *Verbesina*. We collected an adult female from roadside Compositae near Uvalde, Uvalde County, in western Texas (FTH). In Florida, Turnbow and Hovore (1979) encountered numerous adults feeding on fungus growing on old stumps and logs of oak.

NEW LOCALITIES.—BRG; LCC; WWR; Resaca de la Palma State Park, Cameron County; Anzalduas Park, Hidalgo County; 11 mi [ca. 18 km] S Three Points, Webb County.

Lepturinae

Strangalia virilis LeConte, 1873:212

RANGE.—Texas and Oklahoma.
ADULT ACTIVITY.—May to June.
LARVAL HOSTS.—*Quercus* (Linsley and Chemsak 1976).

DISCUSSION.—Adults of this striking species have been recorded as visiting blossoms of a va-

riety of plants (Linsley and Chemsak 1976), and it is particularly abundant on horsemint (*Monarda punctata*) in central and eastern Texas. A single specimen was seen from Lake Corpus Christi State Park, San Patricio County, in June (H. Flaschka).

Pseudostrangalia cruentata (Haldeman, 1847:64)

RANGE.—Eastern North America from Canada to Texas.
ADULT ACTIVITY.—April to June.

DISCUSSION.—One specimen has been seen from southern Texas, labelled "Brownsville, VII-2-65" (JC).

Leptura (Stenura) gigas LeConte, 1873:223

RANGE.—Texas and northern Chihuahua, Mexico.
ADULT ACTIVITY.—April to August.
LARVAL HOSTS.—*Salix* (Vogt 1949*a*).

DISCUSSION.—Adults of this large red-and-black species are difficult to capture, being strong and agile flyers and spending much of their time high in the foliage of their host trees. By their color, form, and swift, buzzing flight these insects closely resemble pompilid wasps of the genus *Pepsis*, which they may mimic. Adults are attracted to fermenting molasses bait, and occasionally come to lights. Larvae bore in decaying logs or rotting portions of living willow trees, particularly wind-broken branch butts and healed-over scars (Hovore 1983).

NEW LOCALITIES.—PG; Anzalduas Park, Hidalgo County.

Cyphonotida laevicollis laevicollis (Bates, 1880:39)

RANGE.—Southern Texas to El Salvador.
ADULT ACTIVITY.—October.

DISCUSSION.—Vogt (1949*a*) collected five specimens on flowers of *Bumelia*, and we took numerous specimens on blossoms of *Clematis*, *Serjania*, and *Cissus* in the Palm Grove Sanctuary in the fall.

NEW LOCALITIES.—SAR; Brownsville, Cameron County; BRG; Mission, Hidalgo County.

Lamiinae

Parmenosoma griseum Schaeffer, 1908:344
(Figure 7)

RANGE.—Southern Texas.
ADULT ACTIVITY.—March to November.
LARVAL HOSTS.—*Opuntia* (Mann 1969), *Yucca* (Rice et al. 1985).

DISCUSSION.—Most specimens of this flightless species were collected by beating basal rosettes of fallen *Yucca* and *Agave*, both of which probably serve as larval hosts.

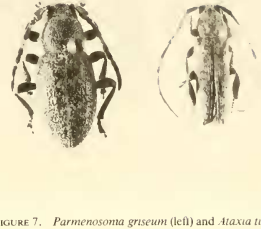

FIGURE 7. *Parmenosoma griseum* (left) and *Ataxia tibialis* (right).

NEW LOCALITIES.—3 mi [ca. 4.8 km] W, 5 mi [ca. 8 km] N Roma, Starr County; Lopeño, Zapata County.

Moneilema armatum LeConte, 1853:234

RANGE.—Southern portions of the Great Plains from Colorado and Kansas south to Mexico (distribution given for all forms of *armatum*).
ADULT ACTIVITY.—May to October.
LARVAL HOSTS.—*Opuntia*.

DISCUSSION.—Raske (1971) considered southern Texas *armatum* to belong to the subspecies *punctatum* Psota, 1930:133, distinguished from more northern populations by the more coarsely punctate dorsal surface. This feature varies clinally from north to south in populations of *armatum*, reaching its highest degree of development in the form *rugosipenne* Fisher from central Mexico (also considered by Raske to be a subspecies of *armatum*). Linsley and Chemsak (1985) did not recognize subspecies in *Moneilema armatum*.

Moneilema larvae bore in stems and root collars of living cactus; *M. armatum* larvae show a preference for the prickly pear cactus *Opuntia* (Raske 1971).

NEW LOCALITIES.—3 mi [ca. 4.8 km] N Roma, Starr County; Lopeño, Zapata County; 10 mi [ca. 16 km] N Laredo, Webb County; 14 mi [ca. 22.5 km] SE Three Points, Webb County.

Moneilema blapsides ulkei Horn, 1885:188
(Figure 8)

RANGE.—Central Texas to northern Mexico.
ADULT ACTIVITY.—April to December.
LARVAL HOSTS.—*Opuntia* (Mann 1969).

DISCUSSION.—This species is both dimorphic

FIGURE 8. Male (left) *Moneilema blapsides ulkei*, female (middle) *Moneilema mundelli*, female (right) *Moneilema blapsides ulkei*. See species accounts for a discussion of the relationships of these taxa.

and dichromatic. Males have a black, densely punctate dorsum, usually with a finely reticulated pattern of whitish pubescence intermixed with indistinct brownish hairs. Females are usually wholly black, glabrous, and at most very sparsely punctate. *Moneilema mundelli* Fisher, 1931:200 (Fig. 8) may only be a morph of this species, differing primarily by the white-reticulated dorsal pubescence of the females and the more clearly defined pubescent pattern of the males. Linsley and Chemsak (1985) synonymized *mundelli* under *M. b. ulkei*.

Adults of all forms of *M. b. ulkei* were abundant on *Opuntia* atop the so-called Yucca Ridges northeast of Brownsville, Cameron County, while the typical form was found at a number of upland localities.

NEW LOCALITIES.—11 mi [ca. 18 km] S Three Points, Webb County; 10 mi [ca. 16 km] N Laredo, Webb County.

Neoptychodes trilineatus (Linnaeus, 1767*b*:532)

RANGE.—Southern U.S. to northern South America, West Indies, Tahiti, Baja California.

ADULT ACTIVITY.—May to October.

LARVAL HOSTS.—*Ficus, Alnus, Morus* (Dillon and Dillon 1941), *Chlorophora, Spondias, Inocarpus* (Duffy 1960), *Salix* (Linsley et al. 1961), *Celtis* (JC), *Juglans*.

DISCUSSION.—Horton (1917) recorded the species' life history on fig trees in Louisiana, and Linsley et al. (1961) stated that *N. trilineatus* is a primary borer in willow and mulberry in southeastern Arizona. Dillon and Dillon (1941) listed *N. trilineatus* from Brownsville, Cameron County; and its occurrence in the Lower Valley would be expected, but we have not encountered it during the course of this study.

Plectrodera scalator (Fabricius, 1792:278)

RANGE.—Eastern North America, from Great Lakes states west to New Mexico and south to Texas.

ADULT ACTIVITY.—April to July.

LARVAL HOSTS.—*Populus, Salix* (Milliken 1916).

DISCUSSION.—Adults of this boldly patterned species were collected from yard and tree lawn plantings of *Populus* in Kingsville, Kleberg County, in May. This is the southernmost record that we are aware of for the species; this species may have been introduced in ornamental plantings of the host tree. Adults frequent foliage and trunks of larval hosts. The larvae mine the living root crown, often seriously damaging the plant. Milliken (1916), Craighead (1950), and Solomon (1980) described the immature stages and discussed the life history in other portions of the species range.

Goes fisheri Dillon and Dillon, 1941:122

RANGE.—Western to southern Texas.

ADULT ACTIVITY.—June to August.

DISCUSSION.—Originally described from Uvalde in western Texas, the few specimens we saw were from the Balcones Escarpment region of the state. A single south Texas specimen is known, labeled "Raymondville, Willacy County, VIII-1969." J. E. Wappes (pers. comm.) stated that this specimen "was in alcohol UVL material along with some *Oncideres pustulata*." Although the pubescence of the specimen is rubbed and matted, it compares well with the original characterization of *G. fisheri*.

Goes tesselatus (Haldeman, 1847:51)

RANGE.—Eastern North America south to Florida, west to Texas.

ADULT ACTIVITY.—May to July.

LARVAL HOSTS.—*Quercus, Castanea, Amelanchier* (Dillon and Dillon 1941), *Ulmus* (Linsley and Chemsak, 1985).

DISCUSSION.—A single specimen was seen from Lake Corpus Christi State Park, San Patricio County, collected in mid-June by R. Heitzman (TCM).

Goes pulverulentus (Haldeman, 1847:51)

RANGE.—Eastern North America south to northern Florida, west to Texas.

ADULT ACTIVITY.—May to July .

LARVAL HOSTS.—*Betula, Carpinus, Ostrya, Quercus, Ulmus, Platanus, Fagus* (Craighead 1923), *Prunus* (Knull 1946).

DISCUSSION.—Dillon and Dillon (1941) recorded this eastern monochamine from Corpus Christi, Nueces County. Solomon (1972) gave

details of its bionomics on oak in Mississippi, and based upon his observations, it is probable that the species occurs on oak in the sandsheet regions south of Corpus Christi and Kingsville, Kleberg County.

Dorcaschema wildii Uhler, 1855:417

RANGE.—Eastern North America to southern Texas.
ADULT ACTIVITY.—May to August.
LARVAL HOSTS.—*Morus, Toxylon* (=*Maclura*) (Craighead 1923).

DISCUSSION.—A single specimen of this Alleghenian species was taken at Welder Wildlife Refuge in July (RHT). Adults are often common on foliage and infested branches of mulberry and come to lights. Solomon (1968) detailed the life history of *D. wildii* on *Morus* in Mississippi.

Dorcaschema alternatum Say, 1823:405

RANGE.—Eastern North America to Florida and Texas.
ADULT ACTIVITY.—April to October.
LARVAL HOSTS.—*Morus* (Craighead 1923), *Toxylon* (=*Maclura*) (Knull 1946).

DISCUSSION.—Dillon and Dillon (1948) assigned specimens from southern Texas (Kingsville, Kleberg County) to the subspecies *D. a. octovittata* Knull (described in 1937 from the Davis Mountains, Jeff Davis County, Texas). Material at hand from the type locality of *octovittata* differs markedly in coloration and pubescent pattern from all other *alternatum* populations examined, and material from southern Texas definitely does not belong with the west Texan form. Linsley and Chemsak (1985) did not recognize subspecies in *D. alternatum*.

NEW LOCALITIES.—Pharr, Hidalgo County; Brownsville, Cameron County; WWR; Nueces and Lavaca counties (TAI).

Parmenonta wickhami Schaeffer, 1908:350
(Figure 9)

RANGE.—Southern Texas.
ADULT ACTIVITY.—May to December.

DISCUSSION.—Two specimens of this flightless longhorn were swept from herbaceous vegetation at Welder Wildlife Refuge in May, and numerous adults were beaten from *Celtis, Condalia*, and *Clematis* in the palm grove.

Adetus brousi (Horn, 1880:137)
(Figure 9)

RANGE.—Kansas to northern Mexico.
ADULT ACTIVITY.—May to July.
LARVAL HOSTS.—*Cucumis* (=*Cucurbita*) (Horn 1880).

DISCUSSION.—This species breeds in dried stems of wild gourd and possibly other Cucurbitaceae; adults have been taken from foliage of the larval host. In southern Texas, specimens were beaten from tangles of vines in the palm grove and were attracted to lights.

FIGURE 9. *Parmenonta wickhami* (left), *Adetus brousi* (middle), and *Desmiphora aegrota* (right).

Dorcasta cinerea (Horn, 1860:571)

RANGE.—Texas.
ADULT ACTIVITY.—May to October.
LARVAL HOSTS.—*Datura, Nicotiana, Solanum, Gossypium, Verbesina* (Linsley and Chemsak 1985), *Matelea* (Rice et al. 1985).

DISCUSSION.—Adults were collected by sweeping or beating the larval hosts; a few specimens were attracted to lights. We took numerous specimens from stems of sunflower (*Helianthus*) near Kingsville, Kleberg County, and we found the species infesting *Nicotiana trigonophylla* at Falcon Heights, Zapata County, in May. Turnbow and Wappes (1978) took a female beetle on an *Oncideres*-girdled *Acacia* twig at Bentsen–Rio Grande Valley State Park, Hidalgo County. Huffman and Harding (1980) took a single specimen in a pitfall trap in a *Citrus* grove.

NEW LOCALITIES.—PG; SAR; Lopeño, Zapata County; Arroyo Salado at Hwy. 83, Starr County; Jct. Hwys. 649 and 2686, Starr County; San Ygnacio, Zapata County; LCC; 4 mi [ca. 6.5 km] S Agua Dulce, Nueces County.

Ataxia hubbardi Fisher, 1924:253
(Figure 10)

RANGE.—Southern U.S. from Arizona to Louisiana.
ADULT ACTIVITY.—March to October.
LARVAL HOSTS.—*Xanthium, Helianthus, Ambrosia, Silphium, Vernonia, Cirsium, Erigeron, Gossypium, Smilax,*

FIGURE 10. *Ataxia hubbardi.*

Thurberia, Verbesina (Linsley and Chemsak 1985), *Apocynum* (Williams 1941).

DISCUSSION.—Adults are collected at lights and by beating or sweeping dead stems of the larval hosts. Rogers (1977*b*) presented life history data for *A. hubbardi* on sunflowers in Texas.

NEW LOCALITIES.—BRG; Pharr and Mission, Hidalgo County; San Ygnacio, Zapata County; FSP; WWR; 4 mi [ca. 6.5 km] S Agua Dulce, Nueces County.

Ataxia crypta (Say, 1831:5)

RANGE.—Eastern North America south into northern Mexico.

ADULT ACTIVITY.—March to November.

LARVAL HOSTS.—*Quercus, Castanea, Pyrus, Xanthium, Verbesina, Ambrosia, Thurberia, Smilax, Gossypium* (Craighead 1923), *Salix* (Hovore et al. 1978), *Acer, Celtis* (Leng and Hamilton 1896), *Acacia* (Turnbow and Wappes 1981), *Prunus* (Linsley and Chemsak 1985).

DISCUSSION.—This species breeds in a wide variety of host plants, and adults are abundant on dead branches of hardwood trees. A few specimens were beaten from dead *Yucca* near El Sauz, Starr County (FTH). Earlier host records for this species in herbaceous plants are considered erroneous, referring to the more recently described *Ataxia hubbardi.* In material examined during this study, the two species were consistently mixed and misidentified. Adults are readily attracted to lights.

NEW LOCALITIES.—PG; BRG; Anzalduas Park, Hidalgo County; Lopeño, Zapata County; FSP; 8 mi [ca. 13 km] SE Zapata, Zapata County; BC; Kingsville, Kleberg County; LCC; WWR.

Ataxia tibialis Schaeffer, 1908:348
(Figure 7)

RANGE.—Brownsville, Cameron County, and vicinity.

ADULT ACTIVITY.—May and June.

DISCUSSION.—We know of only seven specimens, all from the palm grove; some specimens were collected from dead *Zanthoxylum,* some by miscellaneous beating and some at lights.

Desmiphora hirticollis (Olivier, 1795:11)
(Figure 11)

RANGE.—Southern Texas to Mexico and South America (Argentina), West Indies.

ADULT ACTIVITY.—March to October.

LARVAL HOSTS.—*Sapium* (Duffy 1960).

DISCUSSION.—Vogt (1949*a*) found this species feeding upon terminal shoots of *Cordia* in June and September, and a few adults have been beaten from this shrub. Specimens have also been taken at lights. In Central America this species is common at night on dead trunks and branches of a variety of hardwood trees. In southern Mexico it is abundant on healthy green leaves of an undetermined species of nettle (FTH, EFG).

NEW LOCALITIES.—PG; Anzalduas Park, Hidalgo County; SAR; BRG; 4 mi [ca. 6.5 km] W Sullivan City, Starr County; 10 mi [ca. 16 km] E Rio Grande City, Starr County; Pharr, Hidalgo County; LCC.

Desmiphora aegrota Bates, 1880:116
(Figure 9)

RANGE.—Southern Texas to Panama.

ADULT ACTIVITY.—April to October.

LARVAL HOSTS.—*Malvaviscus* (Rice et al. 1985).

DISCUSSION.—This tropical species was only recently recorded from North America (Turnbow and Wappes 1981), and the oldest record seen is a specimen labeled "Southmost, Cameron County, 20-X-74" (UCB). We collected adults from the vinelike stems of turk's cap (*Malvaviscus arboreus* var. *drummondi*) in the palm grove both day and night, and M. Rice subsequently reared it from dead stems of this plant. In Central America *D. aegrota* has been beaten from dead branches of hardwood trees.

Eupogonius pauper LeConte, 1852:159

RANGE.—Eastern North America south to Florida and Mexico.

ADULT ACTIVITY.—April to June.

LARVAL HOSTS.—*Morus, Cornus, Juglans, Cercis, Celastrus, Acer, Fraxinus, Asimina, Zanthoxylum, Carpinus, Carya, Castanea, Gleditsia, Hamamelis, Prunus, Quercus, Rhus, Tilia, Ulmus* (Linsley and Chemsak 1985).

FIGURE 11. *Desmphora hirticollis.*

FIGURE 12. *Ecyrus arcuatus* (left) and *Ecyrus penicillatus* (right).

DISCUSSION.—On previous lists, this eastern species was erroneously identified as *E. fulvovestitus* Schaeffer, or recorded as *E. vestitus* (Say), an unavailable name due to homonymy (Dillon and Dillon 1953; Breuning 1974). Specimens from southern Texas differ from typical material from the eastern U.S. by having yellowish pubescence (whitish, gray, or cinereous in eastern populations) and a reddish-brown integument (typically dark brown to piceous). Adults were beaten from *Fraxinus* (Linsley and Martin 1933) and *Ulmus* (FTH, RLP) at several localities in southern Texas.

NEW LOCALITIES.—PG; BRG; SAR; LCC; WWR.

Eupogonius fulvovestitus Schaeffer, 1905*a*:134

RANGE.—Southern Texas.
ADULT ACTIVITY.—March to May.

DISCUSSION.—In addition to Schaeffer's original record, the only specimens we saw were collected by D. J. and J. N. Knull, labeled simply "Hidalgo County" (Knull published this record in 1954 but added no further data).

Pygmaeopsis viticola Schaeffer, 1908:348

RANGE.—Southern Texas.
ADULT ACTIVITY.—May to September.

DISCUSSION.—Schaeffer (1908:348) stated that this species was taken from "heavy dead stems of vines inside the palmetto grove. . . ." Linsley and Martin (1933) beat specimens from jungle vines at the same site, and Vogt (1949*a*) took single specimens by sweeping weeds and at lights. We have seen no recently collected material.

Callipogonius cornutus (Linsley, 1930:86)

RANGE.—Southern Texas to Veracruz and Jalisco, Mexico.
ADULT ACTIVITY.—April to June, October to November.
LARVAL HOSTS.—*Salix* (Hovore et al. 1978).

DISCUSSION.—This cryptically colored pogonocherine was abundant on fresh broken willow during spring and early summer in the palm grove, and adults were later reared from this host. Hovore et al. (1978) discussed the larval habits of this species and listed ecologically associated Coleoptera. *Callipogonius cornutus* is very closely related to *C. hircinus* (Bates) from Veracruz, Mexico, and the two may prove to be conspecific.

Ecyrus penicillatus Bates, 1880:137
(Figure 12)

RANGE.—Southern Texas to Veracruz and Sinaloa, Mexico.
ADULT ACTIVITY.—April to August, October.
LARVAL HOSTS.—*Pithecellobium* (Rice et al. 1985).

DISCUSSION.—This beetle resembles a bird dropping when resting on dead twigs or in a death-feigning posture (legs and antennae drawn tight to the body) on the beating sheet. This species is uncommon; most material has been beaten from dead branches of *Celtis* or *Salix* or has been attracted to UV lights. The species appeared as *E. fasciatus* Hamilton on some previous lists.

NEW LOCALITIES.—PG; Sam Fordyce Road, 0.5 mi [ca. 0.8 km] S Hwy. 83 (N. M. Downie).

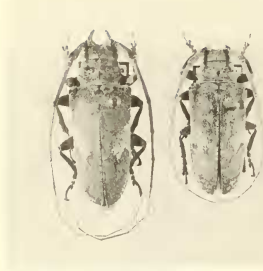

FIGURE 13. Male (left) and female (right) *Lochmaeocles cornuticeps cornuticeps*.

Ecyrus arcuatus Gahan, 1892:259
(Figure 12)

RANGE.—Central Texas to Guatemala.
ADULT ACTIVITY.—March to October.
LARVAL HOSTS.—*Acacia* (Linsley 1935*a*), *Prosopis*.

DISCUSSION.—This species is abundant on dead branches of its hosts, particularly in the fall. Numerous adults were taken at night from trunks and limbs of uprooted second-growth mesquite and huisache at Welder Wildlife Refuge in October, and from fresh-cut mesquite at Bentsen–Rio Grande Valley State Park in May. Linsley (1940) recorded rearing it from leguminous plants which had been girdled by *Oncideres pustulatus*, and we bred it from dead mesquite. Adults occasionally come to lights.

Some earlier authors regarded *arcuatus* as a subspecies (*texanus* Schaeffer, 1908:347) of the eastern *Ecyrus dasycerus* (Say). Chemsak and Linsley (1975*b*) cited specimens of *arcuatus* from X-Can, Quintana Roo, Mexico, and Petén, Tikal, Guatemala.

NEW LOCALITIES.—PG: BC; Mission, Hidalgo County; 8 mi [ca. 13 km] SE Zapata, Zapata County; LCC; SAR.

Lochmaeocles cornuticeps cornuticeps (Schaeffer, 1906:20)
(Figures 4, 13)

RANGE.—Southern Texas and northern Mexico.
ADULT ACTIVITY.—April to October
LARVAL HOSTS.—*Salix* (Hovore et al. 1978), *Leucaena* (Vogt 1949*a*; Hovore and Penrose 1982), *Celtis*, *Acacia* (Knull 1937).

DISCUSSION.—This large onciderine, abundant on dead tepehuaje and hackberry in the palm grove, was not encountered in any other Lower Valley habitat. Vogt (1949*a*) took adults at Pharr, Hidalgo County, and we saw two specimens labeled "Raymondville" (UCB), so it does occur in other areas, but apparently less commonly than in the grove. Adults come to lights, and a single female came to molasses bait in October. Hovore and Penrose (1982) discussed the larval habits in *Leucaena* and gave comparative characters for separating larvae of *L. c. cornuticeps* from larvae of *Oncideres pustulatus*.

Oncideres pustulatus LeConte, 1854*a*:82
(Figure 3)

RANGE.—Texas and northeastern Mexico to southern Arizona(?).
ADULT ACTIVITY.—August to December.
LARVAL HOSTS.—*Acacia*, *Pithecellobium*, *Prosopis*, *Parkinsonia*, *Mimosa* (Linsley 1940), *Leucaena* (Vogt 1949*a*; Hovore and Penrose 1982), *Citrus* (Dillon and Dillon 1946), *Albizzia* (Thomas *in* Ferris 1980).

DISCUSSION.—The life history of this species, commonly called the huisache girdler, has been recorded by High (1915, as *O. putator* Thomson), Linsley and Martin (1933), Vogt (1949*a*), Duffy (1960, as *O. putator*), Thomas *in* Ferris (1980), and Hovore and Penrose (1982). The girdling habits of adult beetles can be very destructive to smaller trees, and severe growth deformities can result from pruning distal portions of the trunk and lateral branches. Thomas *in* Ferris (1980), however, stated that at least one host (*Albizzia julibrissin*, introduced) gains increased longevity by regular prunings, suggesting a mutualistic relationship between *O. pustulatus* and its host. *Leucaena* saplings girdled near the base may grow into shorter, more compact trees than ungirdled saplings; a compact shape could be advantageous to a soft-wood species during severe storms.

Dillon and Dillon (1946) and Linsley and Chemsak (1985) stated that *O. pustulatus* is confined to Texas and adjacent Mexico, but Papp (1959) recorded it from New Mexico and Arizona, based upon material from the LACM collection (Ramsey Canyon and Huachuca Mountains, Arizona; Santa Fe, New Mexico; "Rio Grande Canyon, south of Taos, New Mexico" data fide R. R. Snelling). We have seen no other Arizona or New Mexico collections.

NEW LOCALITIES.—PG; Brownsville, Cameron County; SAR; BC; Kingsville, Kleberg County; WWR.

Oncideres cingulata texana Horn, 1885:195
(Figure 15)

RANGE.—Texas.
ADULT ACTIVITY.—May to November.

LARVAL HOSTS.—*Prosopis, Acacia, Pithecellobium* (Linsley 1940), *Citrus* (Manley and French 1976), *Gliditala* [sic] (*Gleditsia*) (Dillon and Dillon 1946), *Parkinsonia, Celtis.*

DISCUSSION.—Rogers (1977*a*) reported on the bionomics of *O. cingulata* ssp. in north-central Texas, and stated that a small percentage of mature larvae pass a second winter in the host, pupating and emerging the following spring. If this pattern applies to *texana* in the study area, it might account for what appear to be two distinct broods each year. Specimens taken in May are, on average, slightly smaller in size and are less densely pubescent dorsally than those found in the fall; the pubescence difference is not attributable to abrasion.

Habits of *O. c. texana* were recorded in older literature under "*O. cingulatus,*" "*O. cingulator,*" and "*O. texana.*" Determining which subspecies of *cingulata* was being discussed in older papers on biology is difficult, as most works did not differentiate records geographically. It appears that few of the early bionomic reports attributed to *texana* actually refer to the taxon as currently recognized.

Adults are extremely abundant on mesquite and huisache throughout the southern portion of the state. We have observed girdling and ovipositing in species of trees not known to actually serve as larval hosts (retama, hackberry), but we have not reared any specimens from these plants. Adult beetles are commonly attracted to lights.

NEW LOCALITIES.—PG; BC; BRG; LCC; WWR.

Cacostola salicicola (Linsley, 1934:184) (Figure 14)

RANGE.—Southern Texas, western Mexico.

ADULT ACTIVITY.—April to October.

LARVAL HOSTS.—*Leucaena, Salix* (Turnbow and Wappes 1981).

DISCUSSION.—Adults were beaten from dead willow twigs in the palm grove in May and October, and the species was subsequently reared from this host. Turnbow and Wappes (1981) reported rearing a single specimen from *Oncideres*-girdled tepehuaje, also from the palm grove. Linsley (1934) noted that adults pose with the mesothoracic legs and antennae oriented at an angle to the linear axis of the body and the abdomen raised, perhaps mimicking the appearance of a spider or a broken twig. Similar posturing was observed in the ataxiine *Epectasis hiekei* Breuning in Mexico (FTH).

Specimens of either this or a very closely related species were taken from dead shrubs (but not *Salix* or *Leucaena*) near Mazatlán, Sinaloa, Mexico (FTH, EFG), and the species may be widely distributed in Mexico.

On older lists this species was placed in the genus *Cylindrataxia* Linsley.

NEW LOCALITIES.—"Hidalgo" (American Museum of Natural History); Southmost sector, Brownsville, Cameron County; LCC.

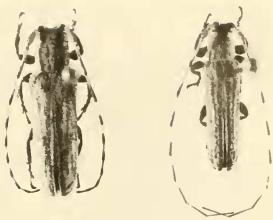

FIGURE 14. *Cacostola lineata* (left) and *Cacostola salicicola* (right).

Cacostola lineata (Hamilton, *in* Leng and Hamilton, 1896:142) (Figure 14)

RANGE.—Southern Texas.

ADULT ACTIVITY.—April to October.

DISCUSSION.—A rare species in collections, *C. lineata* appears to be confined to the extreme Lower Valley region. We collected numerous adults from dead *Baccharis* growing on the low hills west of Boca Chica beach, and we beat additional specimens from *Salix, Celtis, Condalia,* and tangles of vines and shrubs in the palm grove. Linsley and Martin (1933) recorded *C. lineata* as a new species of *Aporataxia,* listing the then undescribed *C. salicicola* as *lineata.*

NEW LOCALITIES.—10 mi [ca. 16 km] W Boca Chica, Cameron County.

Hippopsis lemniscata (Fabricius, 1801:330)

RANGE.—Eastern North America to Central and South America.

ADULT ACTIVITY.—April to September.

LARVAL HOSTS.—*Melothria, Coreopsis, Bidens, Ambrosia* (Leng and Hamilton 1896), *Vernonia, Xanthium* (Schwitzgebel and Wilbur 1942), *Erigeron* (Harris and Piper 1970), *Erechtites, Ageratum, Sesamum* (Duffy 1960), *Helianthus* (Rogers 1977*b*), *Amaranthus, Desmodium, Glycine, Rudbeckia* (Linsley and Chemsak 1985).

FIGURE 15. *Oncideres cingulata texana.*

DISCUSSION.—Larvae bore in stems of herbaceous plants, principally Compositae. Craighead (1923) described the larva, and Piper (1977) gave a fully referenced account of the life history and habits of this species. Adults are readily attracted to lights and may be swept from their hosts during the day. A single specimen was beaten from *Aster spinosus* at Anzalduas Park, Hidalgo County, in company with *Mecas linsleyi* Knull.

NEW LOCALITIES.—PG: SAR; BRG; LCC: WWR.

Spalacopsis texana Casey, 1891:146

RANGE.—Southern Texas.

ADULT ACTIVITY.— May to October.

DISCUSSION.—Tyson (1973) collected this species from "*Hostelezkya*" [sic] and lantana. R. L. Penrose swept numerous specimens from grasses and understory vegetation at Welder Wildlife Refuge in May and beat a mating pair from *Baccharis* at that site in October. The larval host is not known, but *S. texana* probably breeds in dead stems of grasses, annual Compositae, or other pithy plants.

NEW LOCALITIES.—BC: South Padre Island, Cameron County (PAU); Santa, Kenedy County (TAI).

Thryallis undatus (Chevrolat, 1834:fasc. 3, no. 61) (Figure 16)

RANGE.—Southern Texas to Mexico and Guatemala.

ADULT ACTIVITY.—April to October.

LARVAL HOSTS.—*Leucaena* (Vogt 1949*a*; Hovore and Penrose 1982), *Celtis* (Turnbow and Wappes 1981), *Pithecellobium, Acacia* (Rice et al. 1985).

DISCUSSION.—This rotund beetle is common in the palm grove on dead branches of its larval hosts, and adults also were beaten from dead branches of willow and ebony. Vogt's (1949*a*) collection of a single specimen near Mission, Hidalgo County, is the only Texas record for *T. undatus* outside the Palm Grove Sanctuary.

Aegomorphus quadrigibbus (Say, 1835:195)

RANGE.—Southern Texas and Mexico.

ADULT ACTIVITY.—April to July.

LARVAL HOSTS.—*Castanea, Ficus, Fagus, Tilia, Acer, Carya, Cercis, Ulmus, Quercus, Betula, Celtis* (Linsley and Chemsak 1985).

DISCUSSION.—We did not encounter this species in the study area, but we collected several specimens matching Knull's (1958) description of the form *lucidus* from dead *Celtis* and *Acer* in Goliad and Bastrop counties in south-central Texas. The genera *Acanthoderes* and *Aegomorphus* contain over 30 species north of Panama and many more in South America, and these species are difficult to separate or define by older descriptions. *Aegomorphus quadrigibbus* occurs in Mexico and may have been recorded there under other specific names. Knull (1944) collected adults from *Prosopis* near Brownsville, Cameron County (recorded as *Psapharochrus*).

Graphisurus triangulifer (Haldeman, 1847:45) (Figure 17)

RANGE.—Ohio to Alabama and Texas.

ADULT ACTIVITY.—May to October.

LARVAL HOSTS.—*Celtis* (Leng and Hamilton 1896).

DISCUSSION.—Specimens were collected from hackberry and at lights at Welder Wildlife Refuge. Schwarz (*in* Leng and Hamilton 1896) reported larvae boring under the bark of *Celtis,* and Riley (1890) and Craighead (1923) also listed the same host. We found numerous adults on dead and dying hackberry in Goliad and Bastrop counties, and several beetles subsequently emerged from dead *Celtis* gathered at those sites (FTH). Adults occasionally come to lights. *Antecrurisa apicalis* (Bates) from Mexico may be conspecific with *G. triangulifer,* differing only slightly in the extent of the elytral maculations.

FIGURE 16. *Thryallis undatus.*

Lagocheirus texensis Dillon, 1956:139
(Figure 17)

RANGE.—Western to southern Texas.
ADULT ACTIVITY.—May to October.

DISCUSSION.—This species was originally described from material labeled "Dimmit County." Vogt (1949*a*, as *L. procerus* Casey) recorded two specimens, presumably of *texensis*, beaten from cut *Yucca* in Starr County; we also beat this species from dead *Yucca*, 7 mi [ca. 11 km] SW El Sauz, Starr County (FTH). Specimens were taken at lights at Falcon Heights, and A. E. Lewis (pers. comm.) collected it at light near Uvalde, Uvalde County, in western Texas.

Dillon did not include *texensis* in his generic revision (1957), so the taxonomic position of this species is somewhat uncertain. *Lagocheirus texensis* is very closely related to, if not synonymous with, *L. undatus* Voet from Mexico and Central America.

NEW LOCALITIES.—Rio Grande City, Starr County.

Astylidius parvus (LeConte, 1873:234)

RANGE.—Mississippi to southern Texas.
ADULT ACTIVITY.—April to August.
LARVAL HOSTS.—*Ficus* (Townsend 1902), *Pithecellobium* (Turnbow and Wappes 1978), *Zanthoxylum* (Turnbow and Wappes 1981).

FIGURE 17. *Lagocheirus texensis* (left) and *Graphisurus triangulifer* (right).

DISCUSSION.—Most specimens of this greenish longhorn were beaten from dead branches of ebony, persimmon, and hackberry. Vogt (1949*a*, as *A. leiopinus* Casey) took three specimens at lights in Pharr, Hidalgo County.

NEW LOCALITIES.—PG; LCC; WWR.

Leptostylus transversus ssp.

DISCUSSION.—A single specimen of this widespread, polytypic species was taken from a light trap at Welder Wildlife Refuge in June (RHT), and several similar appearing specimens from dead *Acer* and *Celtis* at Goliad, Goliad County, in May (RLP, FTH). They exhibit the general facies of the subspecies *dietrichi* Dillon (from the southeastern U.S.), but their coloration is more like that of the subspecies *asperatus* (Haldeman) from central and western Texas.

Leptostylus gibbulosus vogti Dillon, 1956:141

RANGE.—Southern Texas, Mexico(?).
ADULT ACTIVITY.—December to May.
LARVAL HOSTS.—Fruit of *Sapindus* (Vogt 1949*a*).

DISCUSSION.—The unusual larval habits of this species were reported in detail by Vogt (1949*a*), who discovered the host to be mature fruits of soapberry. Although he reared large numbers of adults from the fruits, he did not collect them by any other method, and the few additional specimens seen by us bear no collecting data. The nominate subspecies occurs from northern Mexico to Colombia (Dillon 1962) where it is commonly beaten from deadwood.

FIGURE 18. *Sternidius texanus* (left), *Sternidius mimeticus* (middle), and *Sternidius wiltii* (right).

Leptostylopsis luteus Dillon, 1956:147

RANGE.—Southern Texas.
ADULT ACTIVITY.—October.

DISCUSSION.—This species is very rare in collections, and we have seen only two specimens: one from dead *Acacia* at Welder Wildlife Refuge (EFG), the other beaten from dead *Baccharis* near Boca Chica, Cameron County (RLP), both in October. The type specimen reportedly came from "Esper Ranch" (Esperanza Ranch), near Brownsville, Cameron County.

Sternidius wiltii (Horn, 1880:124)
(Figure 18)

RANGE.—Southern Texas and northern Mexico.
ADULT ACTIVITY.—April to October.
LARVAL HOSTS.—*Acacia* (Linsley 1940).

DISCUSSION.—Adults of this relatively large *Sternidius* were beaten from *Oncideres*-girdled twigs and branches, and Linsley (1940) reported rearing them from unspecified legumes girdled by *O. pustulatus* and from *Acacia* pruned by *O. cingulata texana*. We collected numerous specimens from girdled huisache at Welder Wildlife Refuge and from drought-stressed mesquite near Boca Chica, Cameron County. Adults have been attracted to lights.

NEW LOCALITIES.—PG: Southmost sector, Brownsville, Cameron County; FSP; LCC.

Sternidius mimeticus (Casey, 1891:49)
(Figure 18)

RANGE.—Texas.
ADULT ACTIVITY.—May to October.
LARVAL HOSTS.—*Leucaena* (Hovore and Penrose 1982), *Acacia*, *Celtis*.

DISCUSSION.—Although *S. mimeticus* and *S. texanus* are both abundant throughout the study area on a variety of hosts, published accounts are difficult to correlate with current nomenclature. Examination of type specimens has shown that "*Liopus houstoni*" Casey was correctly placed by Dillon (1956) as a synonym of *mimeticus*, but *L. texanus* Casey, also synonymized under *mimeticus*, is distinctly different. Texas records for *S. crassulus* LeConte (a Baja California species) no doubt refer to *mimeticus*. This species may also be the *Leptostylus biustus* of Townsend (1902), recorded as infesting fig twigs and dead cotton. Adults were commonly beaten from known larval hosts and numerous other woody plants and were attracted to lights.

NEW LOCALITIES.—PG; BC; SAR; Mission, Hidalgo County; Resaca de las Palmas State Park, Cameron County; LCC; WWR; 4 mi [ca. 6.5 km] S Pharr, Hidalgo County; 1 mi [ca. 1.6 km] E Los Indios, Cameron County.

Sternidius texanus (Casey, 1913:315)
(Figure 18)

RANGE.—Southern Texas and northeastern Mexico.
ADULT ACTIVITY.—March to October.
LARVAL HOSTS.—*Leucaena* (Hovore and Penrose 1982), *Acacia*.

DISCUSSION.—This species is very closely related to described taxa in the *Sternidius alpha* complex and may ultimately prove to be synonymous with *S. naevicornis* Bates from Mexico or *S. alpha misellus* (LeConte) from the eastern U.S. The genus *Sternidius* needs taxonomic review before names can be applied with certainty to the various phenotypes, particularly from the southeastern U.S. and Mexico. Variation in body coloration and elytral vestiture is extreme in our long series from southern Texas; this series encompasses most of the phenotypic diversity recorded for both of the aforementioned species and intergrades broadly with material from western and southern Mexico.

Previous listings of *Leiopus alpha* (Say) probably refer to this species.

NEW LOCALITIES.—PG; 2 mi [ca. 3.2 km] S Pharr, Hidalgo County; Brownsville, Cameron County; WWR.

Astyleiopus variegatus (Haldeman, 1847:47)

RANGE.—Eastern North America to southern Texas, Utah, and southern Arizona.
ADULT ACTIVITY.—May (in the study area).
LARVAL HOSTS.—*Castanea*, *Juglans*, *Morus*, *Ulmus*, *Robinia*, *Celastrus* (Craighead, 1923), *Celtis*.

DISCUSSION.—A single female was beaten from *Celtis* at Welder Wildlife Refuge in May (FTH), and numerous adults were taken from fresh-cut logs of this host at Goliad (RLP, FTH). A spec-

imen was subsequently reared from a larva taken from beneath dead *Celtis* bark at this locality.

Valenus inornata Casey, 1891:50

RANGE.—Northwestern Arizona to northern Mexico.
ADULT ACTIVITY.—May to October.

DISCUSSION.—No larval habits have been recorded for this species, but adults are generally associated with *Yucca*. Numerous specimens were beaten from dead, persistent foliage of *Yucca* in Zapata and Starr counties, and a series of beetles was collected in western Texas from freshly trimmed leaves of ornamental *Agave* (FTH). Adults are attracted to lights.

NEW LOCALITIES.—3 mi [ca. 4.8 km] W Roma and 5–7 mi [ca. 8–11 km] SW El Sauz, Starr County; FSP; 8 mi [ca. 13 km] SE Zapata, Zapata County.

FIGURE 19. *Lepturges infilatus* (left) and *Lepturges angulatus canus* (right).

Dectes texanus aridus Casey, 1913:343

RANGE.—Southern Texas to central Mexico.
ADULT ACTIVITY.—April to August.
LARVAL HOSTS.—*Helianthus*.

DISCUSSION.—The five subspecies of *D. texanus* are poorly defined and of dubious taxonomic value; southern Texas material is phenotypically intermediate between *aridus* and the nominotypical taxon. Our placement follows that of Dillon (1956). Larvae of *D. texanus* sensu latu girdle stems of Compositae, and we beat adults from sunflowers near Mission, Hidalgo County, and from various herbaceous plants along the margins of the palm grove. Vogt (1949*a*) took specimens from *Solidago* south of Pharr, Hidalgo County; R. H. Turnbow swept a series from *Parthenium* at Santa Ana National Wildlife Refuge, Hidalgo County; and Townsend (1902) beat a specimen from *Abutilon* near Brownsville, Cameron County.

Lepturges angulatus canus Casey, 1913:317
(Figure 19)

RANGE.—Eastern to southern Texas, northern Mexico.
ADULT ACTIVITY.—March to October.
LARVAL HOSTS.—*Ficus* (Townsend 1902), *Pithecellobium*, *Celtis* (Turnbow and Wappes 1978), *Leucaena* (Hovore and Penrose 1982), *Acacia*.

DISCUSSION.—Linsley and Martin (1933:182) stated that this longhorn was "abundant on every type of tree and shrub," and this beetle is indeed exceedingly common in certain habitats, most notably *Celtis*-dominated semideciduous woodlands. Adults are rapid runners and are difficult to collect from the beating sheet with appendages intact. This species, and possibly also the following, appeared on earlier lists as *Lepturges symmetricus* (Haldeman).

NEW LOCALITIES.—PG; BC, BRG; 2 mi [ca. 3.2 km] S Pharr, Hidalgo County; SAR; LCC; WWR.

Lepturges infilatus Bates, 1872:216
(Figure 19)

RANGE.—Southern Arizona and southern Texas to southern Mexico and Panama.
ADULT ACTIVITY.—May to October.
LARVAL HOSTS.—*Leucaena* (Hovore and Penrose 1982), *Morus*.

DISCUSSION.—This tropical species was only recently reported from the U.S. (Marqua 1976) from specimens collected at light in southeastern Arizona. South Texan material is lighter in color and more heavily maculate than specimens from Arizona, and it is possible that more than one taxon is being included under the name *infilatus*.

Larvae mine the cambium layer of dead branches of tepehuaje. We took adult specimens on dead mulberry at night (SAR). Adults come to lights.

Lepturges infilatus is very similar to the preceding species in general coloration and form, which may account for its having been omitted from previous lists.

NEW LOCALITIES.—PG.

Lepturges vogti Hovore and Tyson, 1983:349

RANGE.—Southern Texas.
ADULT ACTIVITY.—March to October.
LARVAL HOSTS.—*Yucca* (Hovore and Tyson 1983).

DISCUSSION.—This is the species Vogt (1949*a*) recorded from *Yucca treculeana* in the uplands as "*Lepturges* sp. near *confluens*." It is more

FIGURE 20. *Mecas* (*Dylobolus*) *rotundicollis* (left) and *Mecas* (*Mecas*) *marginella* (right).

closely related to *L. yucca* Schaeffer (western Texas to Arizona) and *L. subglaber* Casey (Durango, Mexico), from which it differs conspicuously by the distinctly patterned elytra and more slender form. Larvae mine dead, persistent leaves of *Yucca*. Adults were reared and beaten from this host, and collected at lights.

NEW LOCALITIES.—BC; LCC; WWR, FSP.

Urgleptes celtis (Schaeffer, 1905*b*:168)

RANGE.—Southern Texas.
ADULT ACTIVITY.—April to October.
LARVAL HOSTS.—*Leucaena* (Hovore and Penrose 1982). *Celtis*.

DISCUSSION.—Schaeffer (1905*b*) and Linsley and Martin (1933) collected this species from hackberry, and we reared it in large numbers from this host and from tepehuaje.

NEW LOCALITIES.—PG; BRG.

Urgleptes knulli Dillon, 1956:337

RANGE.—Southern Texas to central Mexico.
ADULT ACTIVITY.—May to August.

DISCUSSION.—Specimens were taken in the palm grove by beating dead *Celtis* and miscellaneous vegetation. This is probably "*Lepturges minutus*" of Linsley and Martin (1933).

Cyrtinus pygmaeus (Haldeman, 1847:42)

RANGE.—Eastern North America to Texas.
ADULT ACTIVITY.—March to May.
LARVAL HOSTS.—*Quercus, Carya, Cornus, Liriodendron, Robinia, Acer* (Craighead 1923).

DISCUSSION.—Vogt (1949*a*) swept one specimen from succulent vegetation and took another on *Sapindus*, both in Hidalgo County. We have not seen those specimens and so have not been able to verify the determination.

Mecas (Dylobolus) rotundicollis (Thomson, 1868*b*:196) (Figure 20)

RANGE.—Oklahoma to Arizona, Texas, and Mexico, south to Costa Rica.
ADULT ACTIVITY.—May to June in southern Texas.

DISCUSSION.—Adults of this lampyrid-mimic were common on foliage of capitana (*Verbesina microptera*) at Welder Wildlife Refuge in May (Hovore et al. 1978); frostweed, the common name cited by Hovore et al. for *V. microptera,* was incorrect. Chemsak and Linsley (1973) recorded a single specimen from Brownsville, Cameron County, and two specimens from Tamaulipas, Mexico.

Mecas (Mecas) marginella LeConte, 1873:239 (Figure 20)

RANGE.—Southeastern U.S. to New Mexico.
ADULT ACTIVITY.—March to May.

DISCUSSION.—Several specimens were swept from roadside vegetation 27 mi [ca. 43.5 km] S Catarina, Webb County (AEL). We took numerous adults from Compositae in western Texas.

NEW LOCALITIES.—15 mi [ca. 24 km] SE Three Points, Webb County.

Mecas (Mecas) confusa Chemsak and Linsley, 1973:163

RANGE.—Kansas to Texas.
ADULT ACTIVITY.—April to June.
LARVAL HOSTS.—*Heterotheca.*

DISCUSSION.—We swept adults of this all-gray species from roadside vegetation at Lake Corpus Christi State Park, San Patricio County, and along Highway 77, 41 mi [ca. 66 km] N Raymondville, Kenedy County (RLP, FTH). We collected larvae and adults of *M. confusa* and *M. pergrata* from pupal chambers in dead root crowns of *Heterotheca* sp. (probably *subaxillaris*), 10 mi [ca. 16 km] S Sarita, Kenedy County, and we took both species from foliage of this plant at a number of localities in south-central Texas.

NEW LOCALITIES.—6 mi [ca. 9.7 km] E Riviera, Kleberg County (TAJ); 40 mi [ca. 64.5 km] N Pharr, Hidalgo County (AEL).

Mecas (Mecas) cineracea Casey, 1913:360

RANGE.—Southeastern and Great Plains states to southern Rockies, Texas, and northern Mexico.
ADULT ACTIVITY.—April to June.
LARVAL HOSTS.—*Helenium, Baileya* (Chemsak and Linsley 1973).

DISCUSSION.—This species is common in roadside stands of Compositae throughout central Texas, but Vogt's (1949*a*) collection from *He-*

lenium near Mission, Hidalgo County, is the only south Texas record under the name *cineracea*. *Mecas inornata* of Townsend (1902) and Linsley and Martin (1933) may also be this species, but we have not examined their material. Older accounts, as well as more recent biological papers (Rogers 1977*b*), have broadly applied the nomina dubia, *Mecas inornata* (Say), to several different species and may therefore have variously referred to *M. confusa*, *M. cineracea*, or *M. cana saturnina* (see Chemsak and Linsley 1973, for a full discussion of this problem). *Mecas cineracea* probably utilizes a variety of plants as larval hosts.

New Localities.—3 mi [ca. 4.8 km] N Eagle Pass, Maverick County; 7 mi [ca. 11.3 km] N San Ygnacio, Zapata County; 1–5 mi [ca. 1.6–8 km] NW Jct. Hwy. 35 on Rt. 83; WWR; 24 mi [ca. 39 km] S Sarita, Kenedy County.

Mecas (Mecas) pergrata (Say, 1824:407)

Range.—Great Plains to southeastern U.S., New Mexico, Texas, and northern Mexico.

Adult Activity.—April to June.

Larval Hosts.—*Aster* (Craighead 1923), *Helianthus* (Chemsak and Linsley 1973), *Heterotheca*.

Discussion.—Although it is one of the most widespread species of *Mecas*, *M.* (*M.*) *pergrata* is not particularly common in collections. Craighead (1923) described the larva and its feeding habits in stems and roots of *Aster*. Adults were swept from roadside vegetation near Refugio, Refugio County, at Lake Corpus Christi State Park, San Patricio County, and 11–14 mi [ca. 17.7–22.5 km] S Three Points, Webb County, and a few beetles were taken from pupal cells in roots of *Heterotheca* 10 mi [ca. 16 km] S Sarita, Kenedy County. Townsend (1902) and Linsley and Martin (1933) recorded collecting *pergrata* near Brownsville, Cameron County, but we have not seen their material, and they may in part refer to the then-undescribed *Mecas linsleyi*.

New Localities.—Kingsville, Kleberg County (TAI); 24 mi [ca. 39 km] S Sarita, Kenedy County; Freer, Duval County (TAI).

Mecas (Mecas) linsleyi Knull, 1975:130

Range.—Southern Texas.

Adult Activity.—March to May.

Discussion.—Adults of *M. linsleyi* were taken at several localities, always in association with spiny aster (*Aster spinosus*), which is probably the larval host. It may be distinguished from the similar-appearing *M. pergrata* by its larger size, longer, all-black antennae, and more elongate prothorax. The type locality is Bentsen–Rio Grande Valley State Park, Hidalgo County.

New Localities.—Anzalduas Park, Hidalgo County; 3 mi [ca. 4.8 km] E Rio Grande City, Starr County.

Mecas (Mecas) cana saturnina (LeConte, 1859:21)

Range.—Great Plains to Alabama, Texas, and northern Mexico.

Adult Activity.—April to August.

Larval Hosts.—*Ambrosia*, *Xanthium*, *Helianthus*, *Gaillardia* (Chemsak and Linsley 1973).

Discussion.—Specimens were taken from roadside stands of *Ambrosia* and mixed herbaceous plants at several localities in southern Texas, often in company with one or more other *Mecas* species.

New Localities.—3 mi [ca. 4.8 km] W, 5 mi [ca. 8 km] N Roma, Starr County; 11–14 mi [ca. 17.7–22.5 km] S Three Points, Webb County; 6 mi [ca. 9.7 km] E Riviera, Kleberg County; Padre Island, Kleberg County(?) (TAI).

Tetraopes discoideus LeConte, 1858*a*:26

Range.—Rocky Mountain states to Kansas, south to Texas and El Salvador.

Adult Activity.—May to October.

Larval Hosts.—*Asclepias* spp. (Chemsak 1963).

Discussion.—Knull (1948) recorded the collection of this widespread and common species on low milkweed in May at Brownsville, Cameron County, and Chemsak (1963) listed it from San Benito, Cameron County. We have seen no other south Texas material.

Tetraopes texanus Horn, 1878:49

Range.—Eastern Oklahoma to western and southern Texas.

Adult Activity.—April to June.

Discussion.—In his review of the genus *Tetraopes*, Chemsak (1963) cited no larval hosts for this species, but all *Tetraopes* species are considered host specific on *Asclepias*. Adults of *T. texanus* have been taken from foliage and blossoms of several different species of milkweed in both lowland and montane habitats in western and central Texas, but we have not collected it in the study area. Chemsak (1963) listed *texanus* from Boca Chica, Cameron County and "mouth of Rio Grande."

Tetraopes thermophilus Chevrolat, 1861:190, 254

Range.—Southern Texas to El Salvador along the tropical belt (fide Chemsak 1963).

Adult Activity.—August to October.

Larval Hosts.—*Asclepias*.

Discussion.—This species was encountered on stems and foliage of milkweed on disturbed substrates along roadsides and railroad rights-of-way in Mission, Hidalgo County, in October. Vogt's (1949*a*) record of *T. femoratus* from Pharr, Hi-

dalgo County, probably refers to *thermophilus*. Chemsak (1963) examined specimens from Beeville, Bee County; Victoria, Victoria County; and Brownsville, Cameron County.

Tetraopes femoratus LeConte, 1847:93

RANGE.—Western and central states to Ohio, south to Mississippi, Texas, and Central America.
ADULT ACTIVITY.—June to September.
LARVAL HOSTS.—*Asclepias* (Chemsak 1963).

DISCUSSION.—Two specimens of this widespread, polytypic species were swept from roadside vegetation 5–8 mi [ca. 8–13 km] S Guerra, Jim Hogg County, in September (JEW, RHT). This is the southernmost record for *femoratus* in Texas by about 800 km. Phenotypically, this material best fits Chemsak's (1963:64) characterization of the "Great Plains series" of *T. femoratus*.

Cathetopteron amoena (Hamilton *in* Leng and Hamilton, 1896: 161)

RANGE.—Southern Texas.
ADULT ACTIVITY.—April to October.
LARVAL HOSTS.—*Celtis* (Turnbow and Wappes 1978).

DISCUSSION.—Adults of this beautiful lamiine sun themselves on the upper surfaces of hackberry leaves. Numerous specimens have been beaten from *Celtis* foliage or swept from herbaceous plants growing nearby. Portions of the head and thorax described by Hamiton (*in* Leng and Hamilton 1896) as white are, in living specimens, delicate peach-pink (fading postmortem to white).

NEW LOCALITIES.—BRG; Anzalduas Park, Hidalgo County; PG.

Hemierana marginata (Fabricius, 1798:48)

RANGE.—Eastern North America to southern Texas.
ADULT ACTIVITY.—April to June.
LARVAL HOSTS.—*Vernonia* (Schwitzgebel and Wilbur 1942).

DISCUSSION.—This species is frequently collected by sweeping herbaceous vegetation, and many so-called host records represent collections of adults from plants that may not actually serve as larval hosts. Adults were common in May on *Verbesina* at Welder Wildlife Refuge (Hovore et al. 1978) and Lake Corpus Christi State Park. Schwitzgebel and Wilbur (1942) recorded details of the larval biology in ironweed in Kansas.

Hemierana suturalis Linell, 1896:398

RANGE.—Southern Texas, Florida(?).
ADULT ACTIVITY.—May to July.
LARVAL HOSTS.—*Bernardia*.

DISCUSSION.—Most specimens seen were taken by beating or sweeping miscellaneous vegetation. Townsend (1902) collected several adults by beating tangles of *Clematis* and *Ehretia* in the palm grove in June. Specimens in the USNM collection bear data indicating that they were reared from larvae collected in roots and stems of myrtle croton (*Bernardia myricaefolia*) at Brownsville, Cameron County.

We saw specimens of this species that were labeled as coming from Central Florida, and Blatchley (1930) reported beating it from oak in the Everglades (as *Amphionycha*). If these records are accurate, the species either has a very unusual distribution or is distributed across the Gulf Arc and simply has not been collected in intermediate areas.

Questionable Records

The following species, which have either been previously recorded from southern Texas or have been encountered in curated material examined during this study, appear to represent either adventitious, misidentified, or mislabeled material.

Ergates spiculatus neomexicanus Casey, 1890:491

Linsley (1962*a*, fig. 8) showed a locality in the Lower Valley, probably based upon specimens from structural timber. *Pinus* is the larval host.

Megaderus bifasciatus Dupont, 1836:5

A single specimen in the Carnegie Museum, Pittsburgh, Pennsylvania labeled as coming from Brownsville, Cameron County, is the only record we saw for southern Texas. This locality may be erroneous, as the remaining six specimens in the Carnegie series are labeled "El Paso." According to Riley (1880) and Beutenmüller (1896), *Megaderus* was collected from cedar timber (*Juniperus*) in Comal County, Texas, in December and it was recently taken from beneath bark of rotting *Pinus* in Honduras (Chemsak et al. 1980). We have seen specimens from Comal (USNM) and Bastrop (UCB) counties in central Texas, and from Chihuahua, Mexico (UCB).

Callidium texanum Schaeffer, 1917:185

Vogt (1949*a*) collected two specimens on "cedar" fence posts in Hidalgo County, noting that the wood had been imported from northern Texas. This beetle breeds in juniper, and the probability of its becoming established in southern

Texas is therefore very remote. The nearest natural occurrence of *C. texanum* that we saw was in Sutton County, 8 mi [ca. 13 km] SW Roosevelt (FTH, RLP).

Strangalepta abbreviata (Germar, 1824:523)

Papp (1955) listed this common eastern lepturine as *S. vittata* (Olivier) from Brownsville, Cameron County. Linsley and Chemsak (1976) recorded the distribution as reaching only as far south as Georgia.

Taricanus truquii Thomson, 1868*a*:74

Leng and Hamilton (1896), and Dillon and Dillon (1946) recorded this Mexican onciderine as occurring in Texas or the southern U.S., without further data. The nearest Mexican locality we have seen thus far is in Veracruz.

Ataxia spinicauda Schaeffer, 1904:224

Chemsak and Linsley (1982) listed this Antillean species from Florida and Texas. It has often been collected in Florida (Schaeffer 1908; Turnbow and Hovore 1979), but we have seen no material from Texas.

Selective Rearings from Deadwood

During the course of this project, F. T. Hovore, R. L. Penrose, R. H. Turnbow, and J. E. Wappes conducted a series of selective rearings of Cerambycidae from host plant material gathered at Lake Corpus Christi State Park, Bentsen–Rio Grande Valley State Park, the Palm Grove Sanctuary, and in Southmost sector, Brownsville, Cameron County. The results of these rearings, along with a compilation from literature of species utilizing *Citrus*, are presented below. Species cited as having been taken "on *Citrus*" have not been included, as these may not be actual rearing records. Both English and Spanish common names, where known, are listed for the host plants.

Leguminoseae

Leucaena pulverulenta (Schlect.) Benth.—Lead Tree, Tepehuaje
Achryson surinamum, Geropa concolor, Eburia mutica, Gnaphalodes trachyderoides, Taranomis b. bivittata, Dendrobias mandibularis virens, Stenosphenus lugens, Anelaphus debilis, Neocompsa exclamationis, N. mexicana, Obrium maculatum, O. mozinnae, Lochmaeocles c. cornuticeps, Cacostola salicicola, Oncideres pustulatus, Sternidius mimeticus, S. texanus, Lepturges angulatus canus, L. inflatus, Urgleptes celtis, Thryallis undatus.

Prosopis glandulosa Torr.—Mesquite
Eburia mutica, E. ovicollis, Knulliana c. cincta, Stenosphenus dolosus, Anelaphus debilis, Heterachthes nobilis, Obrium mozinnae, Placosternus difficilis, Megacyllene caryae, Neoclytus acuminatus hesperus, N. augusti, N. mucronatus vogti, Oncideres cingulata texana, Sternidius waltii, Ecyrus texanus.

Acacia farnesiana (L.) Willd.—Sweet Acacia, Huisache
Achryson surinamum, Geropa concolor, Gnaphalodes trachyderoides, Taranomis b. bivittata, Stenosphenus dolosus, Neocompsa mexicana, Obrium maculatum, Placosternus difficilis, Neoclytus acuminatus hesperus, Oncideres pustulatus, O. cingulata texana, Sternidius waltii, S. mimeticus, S. texanus, Ecyrus texanus.

Rutaceae

Citrus paradisi Macf., and *C. sinensis* L. (Osbeck)—Grapefruit and Sweet Orange (compiled from Dean [1953] and Manley and French [1976])
Archodontes melanopus serrulatus, Stenodontes d. dasytomus, Eburia mutica, Gracilia minuta, Gnaphalodes trachyderoides, Knulliana c. cincta, Dendrobias mandibularis ssp., *Enaphalodes taeniatus, Elaphidionoides villosus, Anelaphus inermis, Obrium maculatum, Placosternus difficilis, Neoclytus acuminatus hesperus, N. augusti, Euderces reichei exilis, Rhopalophora angustata, R. laevicollis, Oncideres cingulata texana.*

Salicaceae

Salix nigra Marsh—Black Willow
Hypexilis pallida, Elaphidion linsleyi, E. mimeticum, Leptura gigas, Lochmaeocles c. cornuticeps, Cacostola salicicola, Callipogonius cornutus, Ataxia crypta.

Ulmaceae

Celtis pallida Torr.—Spiny Hackberry, Granjeño
Methia constrictocollis, Stenosphenus lugens, Piezocera serraticollis, Neoclytus augusti, Ancylocera bicolor, Lepturges angulatus canus, Cathetopteron amoena, Urgleptes celtis.

Celtis laevigata Willd.—Sugar Hackberry, Palo Blanco
Stenodontes d. dasytomus, Eburia stigmatica, E. mutica, Gnaphalodes trachyderoides, Knulliana c. cincta, Dendrobias mandibularis virens, Neocompsa mexicana, Obrium maculatum, Neoclytus acuminatus hesperus, Lochmaeocles c. cornuticeps, Oncideres cingulata texana, Sternidius mimeticus, Urgleptes celtis, Thryallis undatus.

Ulmus crassifolia Nutt.—Cedar Elm, Olmo
Gnaphalodes trachyderoides, Taranomis b. bivittata, Neoclytus augusti.

Origins and Affinities of the South Texas Cerambycidae: Paleoecological Information

Although south Texas Cerambycidae are predominantly neotropical in origin, the overall fauna is a composite of genera derived from numerous geographic regions. The complex array of probable routes and times of movement im-

plies that present faunal concepts may have to be further refined before we completely understand the mosaic pattern of species origins and distribution. Independent analyses of the origins of other faunal elements (i.e., reptiles, amphibians, and birds) have yielded somewhat differing theories regarding centers of generic differentiation and boundaries of present faunal regions. In the following analysis we utilized the faunal systems defined and discussed by Linsley (1939, 1958, 1961*b*, 1963*b*) and Halffter (1976), which we feel represent the most useful zoogeographic assessments thus far applied to neotropical Coleoptera. We have combined or modified their concepts only where necessitated by more recent taxonomic and distributional information. (For a more thorough discussion of faunal affinities, regional definitions, and global relationships for North American Cerambycidae, see Linsley [1961*b*].)

During the early Cenozoic, tropical flora and fauna from Middle and South America extended over much of what is now North America; southern Texas was within the extensive Neotropical Tertiary Geoflora. Insect populations spread along a number of environmental corridors, with many Neotropical forms reaching the southern and eastern portions of the continent via the lowlands of the Gulf Arc corridor.

Subsequent periods of glacial maxima, with mesic and xeric interglacial episodes, forced many Neotropical organisms to retreat southward into refugia in the hot, humid lower valleys and deltaic plains of the major river systems along the southern boundary of the North American continental land mass. Relatively mild climate during the present interglacial period has permitted many species to extend (or reextend) their ranges away from refugial areas, northward into the mesic eastern deciduous forests, eastward and westward across the lowlands of the Gulf Arc, or northward from southern Mexico through the subtropical Mexican forests into Texas. The arid climate now dominating much of eastern Mexico appears to have disrupted the southern portion of the Gulf Arc corridor, and may serve as an interposed ecological limit to the Austroriparian, Tamaulipan, and Mexican Tropical faunal regions. Thus, a number of Neotropical genera and species found in southern Texas also occur in the vicinity of Veracruz, Mexico, but do not seem to be present in the intervening portions of the Mexican coastal plain.

In addition to repeated terrestrial movements of Neotropical floras and faunas through Texas during shifting climatological regimes, Gulf Stream currents have undoubtedly introduced a number of Central American or Antillean Cerambycidae into the Texas fauna via infested driftwood. A number of species with limited distributions in South, Central, or North America and in the Antillean faunal region may have been dispersed into portions of their present ranges by this method (e.g., *Desmiphora hirticollis, Placosternus difficilis, Anelaphus inermis, Heterachthes ebenus*). Although the rate at which cerambycids are transported by floating wood is not known, the oceanic corridor may provide for constant introduction and reintroduction of Neotropical species to the south-coastal portions of North America.

The lower Rio Grande valley, with its rich deltaic soils and comparatively hot, humid subclimate surrounded by more xeric habitats, has repeatedly been a refugium for mesic-adapted neotropical organisms—a retreat from glacial advances as well as the northernmost extension of tropical forms. According to Porter (1977, discussing mesostenine Ichneumonidae), Pleistocene climatic alterations produced in southern Texas a multiple overlap of northern and southern Neotropical ichneumonid species, and this pattern appears to pertain to the cerambycid fauna as well.

Taxonomic and Analytical Problems

Genera are often rather subjective taxonomic entities. In certain cerambycid tribes many genera appear transitional (e.g., *Aneflomorpha* and *Psyrassa*) or polyphyletic (e.g., *Deltaspis* and *Anelaphus*). Others have not been treated taxonomically since their original description. Attempting to analyze composite or poorly defined genera can produce confused results, but it is beyond the scope of this project to redefine generic concepts for Neotropical Cerambycidae.

Further, genera regarded as arising in a particular faunal region may belong in generic complexes with origins or relatives in South America, Eurasia, Africa, or Micronesia.

In the following discussion we have, where possible, employed a species aggregate and related genera method of analysis. A concentration of modern species in a single faunal region may suggest that the region represents the ancestral

home of the genus, particularly in genera with taxonomically and bionomically well-defined species. The distribution of closely related genera may also provide clues to the origin and developmental direction of a genus. The genus *Ancylocera* Serville is an example: according to Viana (1971), there are six species of *Ancylocera* in Mexico (one of which, *A. macrotela* Bates, extends southward to Nicaragua), one species in Colombia, and two species in central and southern South America (Brazil, Argentina, and Uruguay). Viana incuded six other genera in the Ancylocerini, but Chemsak (1967) had removed one of them, *Championa*, to the Sphaerionini (Elaphidionini [=Elaphidini] of Chemsak and Linsley 1982). Of the remaining five genera, *Ceralocyna* Viana has two Mexican and six South American species, and *Lallancyca* Viana has three species, one each in Panama, Brazil, and Argentina. The other three genera (*Cercoptera* Spinola, *Callancyla* Aurivillius, *Corallancyla* Tippman) are entirely confined to South America, mainly in Brazil and Argentina. *Ancylocera bicolor* has in the past been considered as Austroriparian in origin, and as a species, it may well have evolved in one of the southeastern North American refugia. However, it is apparent from its congeneric and tribal affinities that the genus is present in the Austroriparian region as a relict of Neotropical Tertiary expansion from Central and South America.

As noted earlier, certain genera that appear to be well defined and taxonomically compact within a limited geographical region such as North America may, in other portions of their ranges, intergrade so evenly with one another that they form supergeneric phenoclines. Intermediate character states exhibited in some Neotropical generic complexes preclude absolute placement of certain species in any genus; in taxonomically homogeneous groups such as the Elaphidionini (sensu Linsley 1963*a*), there may exist a virtual continuum of character transition between even the most seemingly disparate genera. For example, several southwestern species of *Enaphalodes* are structurally similar to species in *Elaphidion*, which is, at one character extreme, close to certain species of *Elaphidionoides*, which in turn shows intermediacy with *Aneflus*, *Anelaphus*, and *Aneflomorpha*. These genera are in turn related to *Psyrassa*, *Micropsyrassa*, and *Stenosphenus* (via *Aneflomorpha*); *Meganeflus*, *Micraneflus*, and *Neaneflus* (via *Aneflus*); or *Gymnopsyra*, *Peranoplium*, *Anopliomorpha*, and *Elaphidionopsis* (via *Anelaphus*). Because there is a transformation series between more derivative genera in a number of tribes, and because relatively little is known concerning the biologies and immature life stages of most Neotropical cerambycids, determinations regarding the rate and direction of phylogenetic progression must for now be viewed as speculative. We have, therefore, used the species aggregate analysis method rather conservatively.

Further, certain elements of the Neotropical Cerambycidae are as yet so poorly known taxonomically as to preclude any meaningful assessment without systematic revision. The value of taxonomic refinement in cerambycid faunal analysis was made obvious by the separation of *Leptostylopsis* from *Leptostylus* (Dillon 1956). A clear zoogeographic division appeared when the characters used to segregate North American species were applied to Middle American forms. Of the 64 species remaining in *Leptostylus* (fide Chemsak and Linsley 1982), all but 16 are from North or Central America, while all of the 24 species reassigned to *Leptostylopsis* are restricted to the West Indies, Florida, or the southern U.S.

Generic Origins and Affinities

A number of genera from Texas and Mexico either have species distributions that display no distinct faunal affinities, or have their nearest relationships within Old World generic complexes. Centers of origin will only be determined by careful study of the beetles and their host plants. Even this approach may not fully resolve the question of generic origin, as Chemsak (1963) explained in his monographic study of *Tetraopes*.

Genera distributed widely over a number of faunal regions include *Crossidius*, *Dectes*, *Hemierana*, and *Mecas;* one common attribute of these genera is that they utilize as larval hosts such plant genera as *Gutierrezia*, *Gymnosperma*, *Haplopappus*, *Chrysothamnus*, *Helianthus*, *Aster*, *Ambrosia*, and *Heterotheca*, most species of which are primary invaders of disturbed substrates. The very broad distributions of some species may be an artifact of the recent spread of their host plants along road and railway grades and into agriculturally altered habitats.

None of the naturally occurring genera in southern Texas are of recent northern origin, but

one Nearctic genus, *Leptura*, is represented by a single species, *L.* (*Stenura*) *gigas*. The presence of a Nearctic lepturine may be explained by an early austral ancestry for the subgenus *Stenura*. This taxon contains three very closely related species, together displaying a tricentric pattern of Miocene-Pleistocene relictual distributions. *L.* (*S.*) *emarginata* Fabricius is widespread in eastern North America, apparently having spread from the Carolinian faunal region northward and westward to the Great Plains and New England states, and south to central Florida and east central Texas. *Leptura gigas* is confined to the southern two-thirds of Texas, and the rarely collected *L.* (*S.*) *splendens* Knull is apparently localized in southeastern Arizona. All three species are very similar in form and coloration, and the known larval habits are nearly identical. *Leptura emarginata* breeds in decaying portions of living hardwood trees or in old stumps and snags, while *L. gigas* infests rotting scars, branch butts, and stumps of the riparian tree genus *Salix*, and to a lesser extent *Populus* and perhaps *Quercus*. Thus, it appears that the present species of *Stenura* arose from a common progenitor that became dispersed into Pleistocene refugia in the southeastern U.S., Texas, and Arizona. Isolation led to species differentiation, with the derivative taxa redistributing themselves into suitable habitats during the recent postglacial (or interglacial) period. *Leptura gigas* and *L. splendens* appear to be constrained by the extreme aridity of the regions surrounding their present ranges, but *L. emarginata* has undergone considerable range expansion, spreading through the mesic forests of the eastern and central U.S. The time of arrival of the *Stenura* progenitor is somewhat problematical, but a Holarctic ancestor would probably have been an early entrant to the Neotropical fauna. The only known fossil species of *Leptura* are found in the Florissant shales of Colorado, indicating that the genus sensu latu was present along the southern boundary of the Arcto-Tertiary Geoflora by at least the mid-Oligocene.

The only other Nearctic genera recorded from southern Texas (*Ergates* and *Callidium*) have been taken only as adventitious emergences from imported coniferous fencing and wood products. Two species with very broad host preferences, *Gracilia minuta* and *Hylotrupes bajalus*, are more or less cosmopolitan in distribution, having been spread by commerce into numerous regions in both the Old and New Worlds.

The Alleghenian fauna (in the restricted sense defined by Linsley [1961*b*]) is rather poorly represented in southern Texas, with only a single species each in *Tylonotus, Pseudostrangalia*, and *Astyleiopus*, and two in *Dorcaschema;* however, a number of "Alleghenian" species (in otherwise Neotropically distributed genera) such as *Tragidion coquus, Enaphalodes rufulus, E. atomarius, Elaphidionoides* spp., *Obrium rufulum, Megacyllene caryae, Rhopalophora longipes, Cyrtinus pygmaeus*, and *Eupogonius pauper* reach the study area from the northeast.

The Sonoran fauna enters southern Texas from the west, through the arid portions of the northern Mexican plateau. Many genera of Sonoran origin are more or less restricted to the Chihuahuan Desert, ranging through northern Mexico into extreme southeastern Arizona, southern New Mexico, and east to western and southern Texas. Other genera are more broadly distributed, ranging over the Chihuahuan, Sonoran, and Coloradan desert regions from Texas to California. Most species in Sonoran genera are associated with hardwoods and leguminous trees and shrubs, many of which are derivatives of several vegetation types found in the Madro-Tertiary Geoflora (Axelrod 1958). According to Halffter (1976: 8), "the Sonoran cenocron has a two-fold phyletic-biogeographic origin (ancient South American and Paleoamerican) resulting in adaptation to aridity and marked endemism, both of which indicate a strong degree of in situ evolution." Sonoran representatives in the south Texas fauna include *Aneflus* (sensu stricto), *Styloxus, Moneilema, Eustromula, Taranomis, Plionoma, Valenus*, and perhaps also *Methia* and *Aneflomorpha*. The latter two genera have species in the Californian, Mexican Montane, Mexican Tropical, Austroriparian, and (*Methia* only) Antillean faunal regions.

The remainder of the southern Texas Cerambycidae are clearly Neotropical, with regions and probable times of phyletic origin ranging from ancient South American to more recent Mexican Plateau faunas. Three monobasic genera—*Pygmaeopsis, Cathetopteron*, and *Nathriobrium*—are presently known only from southern Texas. *Nathriobrium* appears to be an isolated relative of the South American genera *Necydaliella, Paraleptidea*, and *Cambaia*. The other two genera, although considered to be Tamaulipan endemics, are closely related to Middle American (*Cathetopteron* to various Hemilophini) or Flor-

idan-Antillean (*Pygmaeopsis* to *Zaplous*) genera. Both would be expected to occur in suitable habitat in adjacent portions of Mexico.

In all, 61 of the Neotropical species listed herein are currently known to occur in North America only in the Tamaulipan Biotic Province. Several wide-ranging monobasic genera (*Geropa, Gnaphalodes, Ornithia*) reach their northernmost distributional limits in southern Texas, and altogether over 70 of the 172 species now known to occur naturally in the study area have their general ranges extending only south into the American tropics.

A few genera, such as *Elaphidion, Spalacopsis, Cyrtinus,* and *Leptostylopsis,* have the largest number of their species in the Antillean faunal region, and *Pentanodes* presently contains but two species, *dietzii* from Texas, and *albofasciata* Fisher from Cuba.

Austroriparian faunal elements extending southwest into southern Texas include species in *Archodontes, Plectrodera, Graphisurus, Astylidius,* and possibly also *Knulliana.*

The majority of the Neotropical cerambycid species in Texas belong to genera extending north from the Mexican Montane or tropical faunal regions of southern Mexico, and Central and South America. Genera reaching southern Texas from the Mexican Montane fauna often have one or more species in the Sonoran region. In some species, such as *Cyphonotida laevicollis,* allopatric subspecies of a single species are found in several different faunal regions. *Prionus, Hypexilis, Elytroleptus, Ochraethes, Tylosis, Lophalia, Mannophorus, Tetraopes,* and possibly *Cyphonotida* appear to have originated in the Mexican Montane faunal region.

Genera with primarily Mexican Tropical (Mesoamerican region of Halffter [1976]) distributions include *Psyrassa, Parevander, Ancylocera, Parmenonta, Thryallis, Strangalia,* and possibly also *Obrium, Euderces,* and *Stenosphenus.* The latter three genera have species in the Vancouveran (*Obrium* only), Sonoran, Mexican Montane, Austroriparian, and Alleghenian faunal regions.

Central and South American genera extending northward through Mexico or across the Caribbean into southern Texas (and rarely into other faunal regions as well) include *Sphaerion, Piezocera, Neocompsa, Tetranodus, Dihammophora, Dendrobias, Lissonotus, Megaderus, Dorcasta, Desmiphora,* and *Cacostola.* The genera *Parandra, Stenodontes, Smodicum, Achryson, Eburia, Heterachthes, Neoclytus, Rhopalophora, Neoptychodes, Adetus, Ataxia, Eupogonius, Oncideres, Lepturges, Urgleptes, Hippopsis,* and *Leptostylus* are Pan-American in distribution, occurring collectively from the Californian and Sonoran regions to the Floridan-Antillean region, through the West Indies and into portions of Central and South America.

Summary

The longhorned wood-boring beetles (Coleoptera: Cerambycidae) of southern Texas have been the subjects of entomological investigations for nearly a century, beginning with a brief collecting account by E. A. Schwarz in 1896. Since then, no fewer than seven species lists have been compiled, providing records and distributional data for approximately 100 species. With the addition of the data contained in the present list, the total number of species naturally occurring in the southern portion of Texas stands at 178.

The study area considered herein encompasses a larger geographical area than did most prior accounts; it roughly corresponds to the Texan portions of the Matamoran and Nuecian districts of the Tamaulipan Biotic Province. Collections and field observations for the project were concentrated in the drainage of the Rio Grande River from Zapata County to Cameron County (with particular emphasis upon remnant forest habitats), and the southern Gulf Coast woodlands (most notably at Lake Corpus Christi State Park and Welder Wildlife Foundation Refuge, San Patricio County).

Remnant forest habitats in the lower Rio Grande valley are now almost entirely restricted to parks and preserves, the bulk of most original native floral communities having been eliminated by agriculture and urbanization. Although the sanctuaries are protected from further direct environmental degradation, most are continually subjected to unnatural stress, from outside elements such as agricultural chemical drift and fluctuating water tables, and from within by certain resource management practices. Older interior swamp and hardwood forests, as well as some semideciduous forests and brushland communities, are overmature and appear to be declining. Normal cyclical and successional processes no longer occur within the refugia, and many areas exhibit community senescence and

lowered species diversity and abundance. Geographical isolation in most of the refugia also contributes to the apparent loss of species diversity, by limiting genetic exchange and by making species vulnerable to ecological catastrophes arising from otherwise natural successional and cyclical events. Fire, flood, protracted drought, or severe frost could alone or in combination eliminate sensitive species from isolated habitats, with no natural pathways available for recolonization from other refugia.

Vast tracts of brushland and savanna-woodland habitat remain in the upland portions of southern Texas, but even these have been substantially altered by long-term cattle grazing. This, combined with the introduction of exotic grasses, has changed community compositions and spatial relationships, favoring the spread and increased density of disturbed-land plant genera such as *Abutilon, Haplopappus,* and *Viguera.* Increases in relative abundance and overall distributions of longhorned beetles associated with these plants have also been observed.

Reduction in the number and diversity of host plant species has no doubt already led to the decline or extinction of certain oligophagous species of insects. Mitigating this situation, however, is the polyphagy exhibited by a number of Cerambycidae, which permits exploitation of alternative native hosts and introduced plant species. Twenty species of cerambycids have been reared from girdled limbs of tepehuaje (*Leucaena pulverulenta*), indicating that such natural polyphagy exists, and 15 genera of Cerambycidae have been recorded as breeding in wood of grapefruit and sweet orange (*Citrus* spp.).

Adult cerambycid periodicity is distinctly bimodal; peak spring and fall activity coincides with moderate temperatures and increased precipitation. Summer-active forms are typically nocturnal genera of Sonoran faunal origin. Drought may inhibit or delay emergence of adults of deadwood-boring species, but appears to have less effect upon species breeding within living hosts.

Distributional data indicate that 170 cerambycid species, in 103 genera, naturally occur in southern Texas. The subfamily Cerambycinae comprises over half the fauna with 95 species in 56 genera; Lamiinae are represented by 65 species in 38 genera; Prioninae by 5 species in 4 genera; Lepturinae by 4 species in 4 genera; and Parandrinae by a single species of *Parandra.* The genus containing the greatest number of south Texan species (7) is *Mecas,* while 17 genera have 3 or more species in the study area.

Although primarily Neotropical in overall origin, southern Texas Cerambycidae also show elements of the Nearctic, Allegheneian, and Sonoran faunal regions. Endemism is fairly pronounced at the species level, with 61 taxa (about 35% of the total) known in the U.S. only from the Tamaulipan Biotic Province. There are 3 monobasic genera, which are at present known only from the lower Rio Grande valley: *Pygmaeopsis, Cathetopteron,* and *Nathriobrium.*

The Sonoran fauna enters southern Texas from the west via arid portions of the northern Mexican Plateau and is represented by 11 species in 7 genera. Only 4 Allegheneian genera occur in the region, but a number of "Allegheneian" species in otherwise clearly Neotropical genera extend into southern Texas from the east. The Nearctic fauna is represented by a single species of *Leptura,* displaying a relictual Miocene-Pleistocene distributional pattern. *Gracilia minuta* and *Hylotrupes bajulus* are widely distributed by commerce and have essentially cosmopolitan distributions.

The Neotropical species have arisen from a number of apparent centers of evolutionary diversification, including the Mexican Montane, Mexican Tropical, and Central and South American faunal regions, and to a lesser extent, the Antillean region. Seventeen genera are thought to be Pan-American in overall distribution.

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Appendix A

List of Common and Scientific Names of Plants
Cited in Species Accounts
(Terminology according to Correll and Johnson 1970)

anaqua—*Ehretia anacua* (Berl.) Johnston
black willow—*Salix nigra* Marsh
brasil—*Condalia Hookeri* M. C. Johnston
cedar elm—*Ulmus crassifolia* Nutt.
cenizo—*Leucophyllum frutescens* (Berl.) I. M. Johnston
colima—*Zanthoxylum fagara* (L.) Sarg.
coyotillo—*Karwinskia humboldtiana* (R. & S.) Zucc.
ebony—*Pithecellobium flexicaule* (Benth.) Coulter
granjeño—*Celtis pallida* Torr.
honey mesquite—*Prosopis glandulosa* Torr.
huisache—*Acacia farnesiana* (L.) Willd.
lotebush ("lote")—*Zizyphus obtusifolia* (Hook.) Weberb.
Mexican ash, fresno—*Fraxinus berlandieriana* A. D. C. (Lower Valley)
Mexican olive—*Cordia bosseri* D. C.
red ash—*Fraxinus pennsylvanica* v. *subintegerrima* (Vahl.) Fern. (Welder Wildlife Refuge)
red mulberry—*Morus rubra* L.
retama—*Parkinsonia aculeata* L.
Spanish dagger, yucca—*Yucca treculeana* Carr.
sugar hackberry—*Celtis laevigata* v. *texana* (Scheele) Sarg.
tepehuaje, lead tree—*Leucaena pulverulenta* (Schlect.) Benth.
Texas palmetto—*Sabal texana* (Cook) Becc.
Texas kidneywood—*Eysenhardtia texana* Scheele
Texas persimmon—*Diospyros texana* Scheele
western soapberry, jaboncillo—*Sapindus saponaria* v. *drummondi* (H. & A.) Benson

CALIFORNIA ACADEMY OF SCIENCES
Golden Gate Park
San Francisco, California 94118